EXPLORING THE PREPOSITIONS:
AN APPROACH TO
THE DESIGN OF PUBLIC-PRIVATE EDGES

by

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TABLE OF CONTENTS

TABLE OF FIGURES

Note: "Figures" refers to drawings made on large, pull-out pages. Additional small drawings appear interspersed throughout the text, particularly in sections concerning Multiple Layer Edges, Finishes, Relationships Sets, and in the appendices.

ABSTRACT

EXPLORING THE PREPOSITIONS:
An approach to the design of public-private edges.

By Karen Vogel Wheeler

Submitted to the Department of Architecture on June 20, 1974 in partial fulfillment of the requirements for the degree of Master of Architecture.

The intent of this thesis is to explore relationships between public and private realms in educational settings, specifically the context of designing arts facilities for M.I.T. The images of Home and Street, which have emerged from discussions among the arts faculty as statements of their concerns for arts environments, are described in order to set out the attitudes and the problem of this study. The problem is seen as the simultaneous accomodation of the needs of Street and Home, those of encouraging public awareness of the activities and providing good, protected working spaces.

The analytical method is introduced in two sets. The Information Set uses prepositional terms to examine how information about relationships between public and private realms may be carried in the ground, enclosure, cover, and finishes of the built environment. Relative disposition of spaces and treatment of edges are cited as planning issues. The Relationships Set categorizes interpersonal relationships between the public realm and private meeting, production, and study spaces which are assumed to be those that characterize facilities for education in the arts. Illustrative examples, chosen from an existing and a designed site on campus, are given.

These analyses are then used to criticize a design for arts facilities for M.I.T. according to the disposition of spaces and treatment of their edges as they satisfy the relational requirements of the Home and Street. Parts of the design are then reconsidered.

Thesis supervisor: Donlyn Lyndon
Title: Professor of Architecture

ACKNOWLEDGEMENTS

This study owes a debt of gratitude to two different sources which have greatly influenced my thinking and learning during my stay at M.I.T. One of these is the arts environments research effort with which I have been working for the past two years. The arts faculty committee has indulged me by letting me participate in their meetings from the beginning, albeit this privilege was swapped for some research and note-taking on my part. The issues they have raised have greatly influenced my attitudes toward arts and education and have become the major focus of this study.

The Council for the Arts at M.I.T., and particularly Professor Roy Lamson aided my research in the area of arts facilities by sending me and three other students off to study arts planning elsewhere. The Arts Environments Study, which has been supported by the Council, and the presence of Mike Guran have been extremely valuable resources. I am especially grateful to Mike for his criticism and advice on this project. Further, the students in 4.153, a spring design studio whose topic was the design of arts facilities for M.I.T. deserve may thanks for having allowed me to try out my observations through criticism of their work.

The other notable influence on my thinking has been the M.I.T./Grunsfeld research on urban public space which, while I have not used it directly in this study, has provided valuable lessons in observation and analysis. My thanks go to Larry Speck who graciously answered millions of questions about that study, and to Professor Stanford Anderson who provided helpful, however occasional, comments on my work.

The one person involved in both of these endeavors, Professor Donlyn Lyndon, who has been my advisor for this study and for previous research and design work on arts facilities for M.I.T., obviously deserves very special thanks for his dupport and advice.

Also, I would like to acknowledge the advice given by Professor Edward Allen who has been "in charge" of thesis students this year. I am grateful to the American Association of University Women whose support of my education this year has allowed me great freedom in pursuing these interests. And finally, thank you to Randy Wheeler, whose patience has supported me in yet another way.

(Note: I assume responsibility for any misrepresentation or factual errors which may occur in this study or which may be construed from it.)

Preface

One of the most haunting remembrances of my childhood (which of its type ranks second only to the chanting of "The Jabberwocky's" sense and nonsense) was the contrivance of melodic sequences to help recall which German prepositions take dative case nouns and which take the accusative.

Aus ausser bei mit
Nach seit von zu

Fur bis durch wider
Gegen ohne um and

An auf hinter neben in
Uber unter vor und zwischen*

have stayed with me as amusing checklists necessary to my use of the language. My childish imagination gleefully played with the last cant in particular, leapfrogging from image to image of being on, upon, behind, near and in; then over, under, in front of, and between. Of all the catalogues

* "Out of, besides, at the home of, with/ After or at, since, from, to or at." (Dative)
"For, until, through, against (interpersonal)/ Against (physical), without, around." (Accusative)
"On, upon, behind, near, in/ Over, under, in front of, between." (Dative and accusative)

of rules I memorized back then, these relationship-words keep returning to my mind as a sort of checklist for my study of architecture, probably in the same way that I imagine "who, what, where, when, and how" must haunt writers of clear expository prose.

This last set is the easiest to remember of the three because there is an apparent logical reason why it sometimes takes the dative and sometimes the accusative: dative is used when the relationship is already existing and accusative when it is actively being formed, the difference between being in a room and going into it.

The meanings and logic of the other two sets are not so apparent, however, so I simply took to memorizing them as Jabberwocky-like chants. Unlike the last set's explicit construction of physical and spatial relationships, the first two sets of "out of, at the home of, with, after or at, since, from, and to or at," and "for, until, through, against, against, without, around," carry additional relational meanings, meanings more difficult to translate, to express, and to define. These belong to interpersonal and temporal relationships as well as to location. I used to catch myself wishing that language would be consistent and logical by giving locational and physical relationships to the accusative case, and temporal and interpersonal ones to

the dative. The more I think about it, however, the nuances in meaning provided through language may only be a sign of the complexities involved in describing relationships experienced in the real environment. And then the language seems simple indeed!

Without subjecting this flight of fancy to further analysis, I would simply observe that prepositions, in language, are the words of relationship, and the complexities and differences in treatment of spatial, interpersonal, and temporal associations seem significant. Being "at the home of" and being "in," while expressing different -- social and physical -- frames of reference, may actually interact and reinforce each other's experience. The ways in which interpersonal relationships may be enhanced or, indeed, enabled by physical ones have been of fundamental concern to me. This thesis, however limited in scope, attempts a more detailed analysis of some of these prepositional relationships as they are manifested in the built and inhabited environment.

Introduction

The context. The problem. This thesis starts from the attitude that environments that house educational activities should be educative in themselves. Among other things, this may mean that the working processes contained in the educational institution or setting should become evident in the everyday experience of its public environment. The design of that environment must then acknowledge that exposure to activities may have educational value for those in the public realm as well as for those directly engaged in the activities.

This attitude has emerged, as one of several, from discussions among members of M.I.T.'s arts faculty, students, and administration concerning possible future development of arts facilities for the Institute.[1] They have also made the argument, in a report entitled "Axioms for the Planning of Arts Facilities"[2] and elsewhere, that the workshop is the most critical setting for education in the arts, as perhaps also for scientific and technological disciplines. The

process of creation becomes more important than the presentation of its products. This should not only influence the qualities and types of facilities provided, but also be reflected in and condition the public image of the place. In arguing for accessibility of arts activities to the M.I.T. community, the Axioms report says that "the emphasis should be on ease of access, a ubiquitous presence of stimulating activities, events, and displays, and the establishment of good working conditions." (p.2)

It has seemed to me that this juxtaposition of emphasis on access and exposure against the concerns for providing good working conditions, sets up an interesting dilemma. Good working spaces, for the arts or for any creative processes, need to be able to control the kinds and degrees of access from the public realm, even to the point of excluding it altogether. Yet the quality of experience of the public spaces and their ability to help one become informed and oriented physically and perhaps socially in that environment may depend on awareness of the workings of the place.[3]

Discussions among the arts faculty have produced two images -- those of Home and Street -- as (in my opinion at least) the most articulate and telling statements of their vision for the arts and educational settings within the institution. These are examined here in the next section

as they form the context for this study and articulate its central problem: the conflicts in accomodating the public needs of the environment without compromising the privacy needs of individual educational settings.

The "method": A second theme of this study which has already been introduced in the Preface, provides the means for examining the relationships between public and private realms. The beginnings of a relational "grammar" based on the use of prepositions and the physical and interpersonal relationships they describe, are explored and acted out in separate but related exercises in analysis and design. These relationships are examined in two sections called, for the sake of identification, the Information Set and the Relationships Set.

The Information Set deals with the ways in which the built environment may carry information about and establish relationships between the public path and adjoining private activity spaces. The Relationships Set categorizes interpersonal relationships which may be arranged between types of educational activities and a public realm occupied by people with varying ties to the activities. The findings of these two sections are then used to criticize and recycle a design for arts environments at M.I.T. in order to test their usefulness in a design process and to refer them back to the

context of Home and Street where they were raised.

The argument. The central argument which this study attempts to make and demonstrate is that a key issue in the simultaneous accomodation of needs for publicness and privacy, the needs of Street and Home, is the identification of the ability of an activity to tolerate scrutiny by those not directly engaged in it. This must be matched with a setting which fosters certain interpersonal relationships between the public and private realms, and must be housed within a physical setting that, by the disposition of its spaces or by the treatment of its edges, should acknowledge and enable those relationships between realms.

What follows are my beginning efforts to attend to this argument. Much of this study, I realize, represents a fairly personal approach to a problem which could be understood in many ways; I have understood it to be the means for exploring some of my concerns for the built and inhabited environment through a context which I have come to know very well. However incomplete or shaky the arguments and methods of this study may be in an absolute sense, they are nevertheless meaningful to me as beginning formulation of ways of looking at and designing educational environments.

Home and Street

The images of Home and Street have figured in discussions among the arts faculty and in the Arts Environments Study as analogues for social milieux desirable in any future facilities developments. In the dynamics of group meetings, the images have served as common ground, as rallying points, often unchallenged because they evoke many diverse and even contradictory qualities. Home and Street together embody many of the generally shared needs for good working spaces and internal program focus, and the common concern for enlivening the public environment of M.I.T.

Because images can communicate these concerns without setting formulae for their implementation, they have served as intermediaries for discussion about program needs: each academic arts program was allowed hypothetically to define its own needs for "home" and to designate its most public component as its face on the "street." Also, since these particular images are not traditionally associated with institutional patterns, at least not with those pertaining

to education, they could also serve as intermediaries for discussion about the institution. In fact, they probably have been so appealing because they introduce qualities not presently found in M.I.T.'s visual, physical, and social environment, but desirable in future educational settings for the arts.

Initially, I saw the usefulness of the images simply as a shared basis for exchange and a way of focussing facilities needs. They conditioned both format and content of programming for future facilities; thus an understanding of the images has been necessary to the design studies that form part of this thesis. More important, however, the images of Home and Street have implied interpenetration of public and private, communal and individual life, and have therefore provided the germ of the more analytical studies which I have undertaken here. The concern for the Home, for providing good, protected working and meeting spaces that collectively express the essence of each academic program, seems to me to pose important design problems when seen next to the concern for the Street, for encouraging public awareness of the activities along its edges. This simultaneous concern for Home and Street and the attendant conflicts and controls form the central theme of this study.

THE IMAGE OF HOME

When the image of Home, or hearth, for each program was suggested as appropriate to current arts facilities discussions by Professor Robert Trotter during his presentation at an Arts Environments Conference at M.I.T. in September, 1973,[4] it was immediately assimilated into the vocabulary of ongoing arts environments studies. Most of the components of Home were already present in the arts faculty's concerns. Introduction of the image served to consolidate and to express these concerns in a way that could be visualized concretely and yet be open to change and to individual interpretation.

The faculty had argued from the beginning for small "centers," nuclei of activity that would be identified physically and symbolically with the programs, in the same way that the main dome of M.I.T., which houses the engineering library, stands for Technology.[5] The notion of external, public visibility as a need belongs more to the Street than to the Home, but need for internal focus and identifiability lies at the very heart(h) of Home.

The act of applying the image of Home to an institutional

setting extracts it from association with existing physical settings (like dwelling units), and refers it to an ideal, a symbol for a certain archetypal experience. "All really inhabited space bears the essence of the notion of home," writes Gaston Bachelard; he explains inhabited space as the "non-I that protects the I."[6]

This experience of inhabiting, when transposed to an institutional setting, might be characterized as: a sense of belonging; identification with a group and a protective group-place; and license to manipulate that environment (as the test of belonging). The Home is both a shared place which fosters informal and formal exchange, and a place for individual retreat and self-expression. Like the high school homeroom concept, the Home provides a base of operations, an element of stability from which one ventures and to which one returns to measure one's experiences. One of its most important functions is to provide a testing ground for one's ideas and work.

The program Home should provide a range of collective and individual spaces.[7] It should contain individual study and work stations and two-person alcoves for visiting, at the same time as it provides shared production and meeting places. The "hearth" should most uniquely reflect the program. It should be a place to see others and to be seen.

It should be the setting for social events that bring together those who belong in the program -- even over the mundane daily coffee-break, the weekly lunch, sherry hour, or lecture, the end-of-term charrette, the yearly party.

A Home should be a place that expresses the program that inhabits it. It should carry information about the program and about the field of study in general. This information could be of many sorts: factual information about the field as found in standard references, current periodicals, or other publications; curricular information; and most important, by demonstration, information about the processes of the arts (in this case) and the lifestyles that accompany them. In contrast to individual private work sanctuaries, this aspect of Home belongs to its more public face, and should be reflected at its very front door. Yet the Home should also not reveal itself all at once, either to the casual passer-by or to those closely engaged in inhabiting its workshops. There must be places that are discovered and made personal as well as those which offer themselves for public scrutiny and thereby protect the other, more private places.

This description of Home as an image attempts to set out a great range of sizes and characteristics of Home, from the most personal spaces to the most public. The most

important task in making the image of Home useful in the programming and design of arts facilities for M.I.T. lies in determining what user groups require homes, what constitutes a home for these groups, and what relationships among homes should be developed. A favorite chair and a favorite outlook may constitute a home, however temporarily, for one person, but the number and variety of homes that can be made for groups are uncountable. Providing homes for different combinations of people and activities directly affects their organization and disposition. One can imagine the resulting physical structure as a series of identifiable realms, home territories for various activities, hierarchically arranged and controlled to protect the most private and to expose the most public.

What then is of fundamental concern to this study is an assessment of the relative tolerances of public exposure and requirements for privacy of the various components of a program Home (assuming the program as a logical unit to receive definition of Home). Then their disposition relative to the Street can be arranged in order that the purposes and qualities of each can be assured. These issues, it appears, cannot be resolved through further abstract descriptions of the image of Home, so they have been acted out in a limited way through the design of facilities illustrated in the third section of this study. Description of the design for the Photography program takes up the issues of Home again.

THE IMAGE OF STREET

The image of Street was introduced into the arts faculty discussions and reports at the beginning of 1973 as an enlargement upon the "Axioms for the Planning of Arts Facilities." (See Appendices) The image was intended as a means for visualizing a physical context that could embody the attitudes about exchange among disciplines and about public awareness of the working processes of the Institute that were expressed in the Axioms.

Though undoubtedly the image of Street produced different, perhaps even conflicting, associations among the arts faculty, the image offered an important physical alternative to the monumental and isolated Arts Center. The faculty had been arguing that the arts at M.I.T. should be distributed throughout the Institute (though not in the remote and disparate locations they presently occupy)[8] and could in fact become the connective tissue for a varied and active public life at M.I.T. The linked corridor system of the main campus in principle seemed to offer a model for potential inter-relationship of activities, but in fact this implicit potential is not realized.[9]

As with the image of Home, Street carries with it the remembrance of a set of experiences. The image of Street invoked here is one of active pedestrian life: "The interconnecting spaces should be ... like an active pedestrian street with many interesting uses and a rich variety of opportunities for engagement." (Axioms report, 2) Unlike M.I.T.'s main corridor, the Street would respond differently to day and night, weekday and weekend, seasons, holidays, and special events.

The Street simultaneously expresses its functions as a system of movement, as a framework for uniting people in time and place, as a potential public forum, and as a means for personal exchange, usually over goods or services in its urban setting. The Street is decisive, large scale; it goes somewhere and comes from somewhere. It is part of a larger system. It is not necessarily straight and hieratic, but has the capacity to develop special character along its edges or in its path as it accepts different uses, intersects with different paths, and even separates itself into different zones.

The life of this image street is dependent on the capacity of the activities along the edges to make themselves apparent and to provide opportunities for engagement. In an urban setting, each shop or cafe or bank or whatever vies

for its clientele from among an undifferentiated public, attracting its special segment of the market. The exchange that is produced is limited in type: the customer pays for merchandise or services, not a very deep or personal type of exchange. An academic street would have to be different. The most important difference, at least in this case, is that the public is not undifferentiated -- most of those who would use the academic street already have some relationship to the institution.

The various academic programs that would line the Street would orient their most public activities toward it. The workings of the programs would become evident in the everyday experience of the place. Students could become informally acquainted with some the activities and would be able to choose more easily among learning situations that suit tham.

Though the conceptual image of glass-walled corridors was immediately appealing to the arts faculty in their earliest discussions of an enlivened public realm (Axioms report, 1), the need for protection from constant, undifferiented scrutiny must be accounted for.[10] Therefore, a variety of controls is necessary to modulate the edges between the street and the programs' homes. This is an important difference between the image of Street for an aca-

demic environment and that for a commercial setting. The shopping examples often invite full scrutiny as an advertising device to peddle their wares. The analogy of buying is to selling and learning is to teaching is singular and inappropriate.

Two altered versions of the Street notion have emerged. One is the Network of Streets; the other is the Bazaar.[11] A network of streets with a hierarchy of publicness and privacy preserves that image of the active pedestrian street as the dominant public place of exchange and adds to it the possibilities of secondary streets which are the entrance lanes to the various programs, and of back alleys which join various programs internally and which connect to the program hearths. The bazaar implies both a social and a physical context where the activities determine the structure of one's experience. Two-way relationships between relatively public and private realms are encouraged by a flexible physical framework in which shifts and growths in the activity uses may determine public movement through it.

Both the bazaar and the network of streets fit well with the image of multiple homes distributed throughout the university. The network of streets allows the circulation spaces to be characterized by degrees of publicness and privacy and thereby influences the kinds of controls used to protect the adjoining activities.

Section 1:

THE INFORMATION SET

INTRODUCTION

GROUND

ENCLOSURE

SINGLE LAYER EDGES 1 & 2

LAYERING WITHIN SINGLE EDGES

MULTIPLE LAYER EDGES: Matrices 1 & 2

MULTIPLE LAYER EDGES: Issues

COVER

FINISHES

Introduction

The relationships studied. This section deals with the ways in which information about human interaction and activities is carried in the physical environment, and how the physical environment establishes relationships between public and private realms. Though important information about relationships among people is carried at the largest and smallest scales -- settlement patterns in the landscape to scribbled handbills littering a bulletin board -- this study concerns only an intermediate scale of the built, architectural environment, and within that specifically the ground, enclosure, cover, and their associated finishes. Further, though the environment carries a wide range of types of information, this study is concerned with that which may be described in prepositional terms -- as, for instance, being next to, over, or in front of activities or areas that are recognized as different.

The cover, ground, and enclosure deal most directly with those prepositions which describe relational conditions in

the "language" of the built environment. The following section categorizes some of the physical means for defining public-private relationships and for manipulating the built surroundings to identify and call attention to an activity or area.

Distinction between "private" and "public". In this study, areas are considered private according to two criteria. First, the recognition of a space as belonging to someone and thus perhaps as different from other spaces may characterize it as relatively private. This definition of private is assumed throughout this study, but has particular significance for this section since this may be one of the locational relationships which prepositions are capable of describing. Second, areas are referred to as private when they, for whatever reason, require some degree of control over exposure and access from those in a relatively unrestricted public or communal realm. This communal realm is assumed to be made up of spaces which are shared and readily accessible physically and socially. In the illustrations and their descriptions, the public realm is considered as a path, though it may also take other less specific forms.

Definition of prepositional relationships. Prepositional relationships are those which acn be described in prepositional terms or by prepositions as words. As describers of

thr built and inhabited environment, they may express locational, interpersonal, and temporal associations. (The last is not considered in this study.) The perception of being in, next to, over, or near an activity or space may define and reveal commonality or separation among people and activities through the physical form of the place.

While, like their linguistic counterparts, prepositional relationships are not sufficient to describe the whole environment, they may modify or qualify it and give it particular meaning. They carry information about where one is physically in the environment and about where one belongs. They may reveal who is where and what is happening, and may characterize one's potential to act on or manipulate the environment over time. Perception of the relationship may allow the transmission of information between public and private realms; such communication or the lack thereof may enable or discourage learning from the public environment. Thus an examination of prepositional relationships in this context may offer a significant, if limited, view of the making and inhabiting of an environment for education.

Two types of control conditions. There are two major categories of physical consition which exert control over the public's experience of the private realm and the ability of those in the private realm to control physical and sen-

sory access. First, relative disposition in space of public and private elements establishes the potential for interaction by placing activities relatively near or far away, or relatively above or below. Second, the establishment of boundaries or edges that mediate between the two realms may delimit fields of vision or hearing and provide the means for incremental control over access.

These two categories interact to reinforce or contradict each other; in some cases, they may be shown to be equivalent (very thick boundaries may have the same effect on protecting an activity from public scrutiny as very long distances). The second category, the conditioning of edges through manipulation of ground surfaces, cover, and enclosure, is treated more thoroughly here because it deals more directly with the making of relationships through communication between the private and public realm. Also, perhaps unjustifiably, this sgudy's emphasis has been influenced by the circumstances of looking at and designing within the main campus of M.I.T., where only the edges offer much opportunity for establishing relationships between the two realms.

Illustrations. The illustrations which categorize the following sections on ground, enclosure, cover, and finishes are not meant to be exhaustive or conclusive characteriza-

tions of these building elements, but are merely meant to describe various types and ranges of elements, their ability to carry information, and the kinds of relationships they may allow. The examples were not derived from any particular sources -- they were invented or remembered rather than found. Thus they are isolated from a physical or social context. Some of them have been given an artificial, diagrammatic context by being drawn serially, much like the German prepositions described in the Preface. Though they have been referred to in the illustrations to the Relationships Sets, any further work on this section would benefit from either photographic or sketched reference to real places where the elements are used in some characteristic manner.

As a reference device, the keys to the illustrations have been marked in the upper right corners with this little symbol:  .

Ground

The ground is the means for distributing people and activities throughout the environment and for arranging sequential experiences of spaces and their occupants. It is primarily through location within the ground as a three-dimensional field that one recognizes relative disposition in space of activities.

The ground is by nature a continuous surface which is common to adjacent public and private, path and activity spaces. Manipulation of the ground, through level changes for instance, may serve to separate or to unite activities in space by controlling people's views and thus their contacts. Variations in level have the special capacity to alter the range of vision (to allow one to see over, around, under, etc.) and to raise an activity or person above another (allowing separation or association of zone). The information-carrying capacity of the ground that is of interest to this study rests in this ability of the ground to connect

and to separate zones, locational relationships which may be described in prepositional terms.

Changes in the path itself -- moving upward, downward, or sideways relative to activity spaces -- affect the physical and thus the interpersonal relationships of those in the path to those engaged in adjoining activities. Travellers on a path that overlooks an activity space, for example, will associate with that space differently from those on a path below or beside the activity. Changes in the path may also cause special relationships among people within it or within a larger system of movement patterns. Likewise, the ground may form edges which channel one's path of movement through it and which establish different zones alongside. The following illustration shows some of these edge-forming and zone-forming capacities of the ground, mostly through changes in level.

Treatment of the ground's surface affects the quality of movement across it; its condition determines the physical ease or difficulty of maneuvering along a path or toward a destination. Variations in treatment of the surface quality may serve as relatively subtle means for distinguishing one zone from another, or for signalling an impending change in zone. Some of these issues are discussed in the section on finishes.

GROUND EDGES

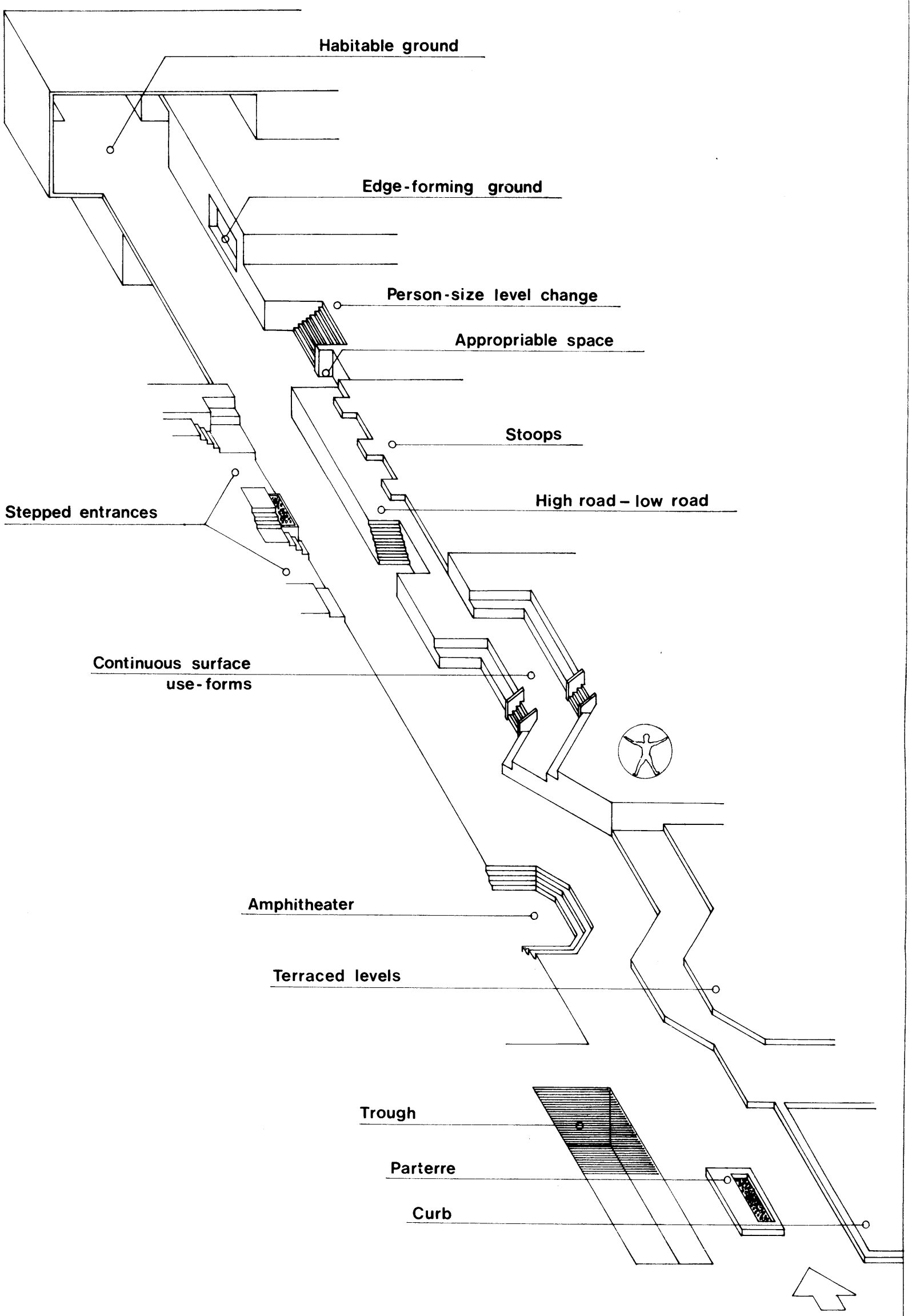


Figure 1

KEY TO GROUND EDGES

CURB: The curb separates one area from another of approximately the same level. Typically, the curb helps differentiate the path into parallel zones of movement, though it may also be used in conjunction with the treatment of the ground surface to separate areas from each other.

PARTERRE: A built-up interlude in the path which may channel the direction of movement and set apart a quieter zone from the mainstream of the path as a resting place may act as a resting place or as a focus of attention. Depending on the ambiguity or clarity of the form, the parterre may act to separate or to connect areas within the path.

TROUGH: A substantial level change along the path, which may be further separated by railings along its edges or which may allow connection by being grilled over, may help to delineate one area as different from another though on the same level, or may allow some awareness of the spaces below.

TERRACED LEVELS: Like the example of the curb, the one step up taken at each terraced level separates areas and acts as

a weak implied boundary. Terraced levels may be made to provide a range of sizes and shapes of ground areas which may or may not receive enclosing edges or further definition to set them apart. Within a single space, even such a small change in level may separate zones for different uses, the higher usually being the more exclusive, though the subtlety of such a small change does not require such a distinction.

AMPHITHEATER: This stepping down from the path creates another kind of interlude or interruption in it. Its form seems to concentrate the attention of those who would stand or sit in it, and thereby establishes a shared basis for commonality. Because the path is higher, those on the path can look over those in the amphitheater and easily observe or take part in the event.

CONTINUOUS SURFACE USE-FORMS: The change in level is more pronounced here than in "terraced levels" and is of a dimension which can be used physically, for seating for example. The stairs perpendicular to the path require a conscious change in one's direction of movement from the walkway, so upper levels are not so immediately accessible as the path edge itself. The configuration of the levels in this case would cause its occupants to overlook the path as the center of attention. Compared with the amphitheater example, those

in the public path cannot become so easily a part of those using the staged areas, but the form establishes similar shared relationships among those using the seating. Other configurations might have different relationships to the path.

HIGH ROAD - LOW ROAD: The stairs running parallel to the path separate the higher area from the main one, making it more appropriate for access by a limited public or making it a raised station for viewing the surrounding areas. The degree of remove that is shared by the group of entrances pictured here may provide a basis for commonality not possible along the main path or at the same level of the main path.

STOOPS: These small level changes associated with the edge serve to emphasize the entrance, to separate it from others and from the path, and to help create a frame for personalizing one's entryway. They may also provide a setting for interaction, a place to sit or hang around and chat with neighbors, or simply a locus for placing oneself in the public view.

STEPPED ENTRANCES: Some stoops may have more elaborate and complicated forms, providing places for sitting or displaying and thus increasing their potential for identifying their

occupants. Rather than establishing collective settings for entrances to individual spaces, as the "high road - low road" does, stepped entrances may provide a more grand single entrance to a shared domain.

APPROPRIABLE SPACE: Small spaces that are continuous with tha path surface but slightly removed from it may be considered left over, but have an important function by being claimable. They become stopping places in or along the path where personal exchange is possible, or they become places to put things that belong somehow to both realms (bicycles that belong to those in the private realm but which are used on the public paths; garbage cans which are meant to be disposed of through the public realm; potted plants, exhibits, or information kiosks which form an external public image of the activity spaces; and so on).

PERSON-SIZE LEVEL CHANGE: A significant change in level definitively separates one area from another, but because it is low enough to be easily within one's range of vision, there still is potential for communication between the zones. Access via a stairway perpendicular to the path likewise calls for a conscious decision to enter the upper realm and serves as a social as well as physical boundary.

EDGE-FORMING GROUND: When the level change gets to be of

at least shoulder height, they begin to define an edge or enclosure which may be treated like those described in the section on enclosure. While still defined as a continuous surface, as illustrated here, they may retain their formal character as ground, but varying their surface treatment or penetrating them significantly may contradict their "groundness" and put them into the category of enclosure; only the upper and lower surfaces are then perceived as ground.

HABITABLE GROUND: The ground may establish a whole habitable environment within itself. In doing so, it is dealing not just with the making of edge relationships between realms but with a larger scale disposition in space of activities. Because of tis continuity, the ground may establish a basic commonality or collectivity within a region, within which other relationships may be made. The degree of publicness or privacy of these areas depends on their relative location as well as on the treatment of their edges. For instance, a fairly private activity may be safely located above the public path, overlooking it, whereas the reverse positioning may be threatening to the privacy of the activity.

Enclosure

For purposes of this study, the enclosure is considered the most important information-carrying element discussed, because it most directly establishes interpersonal relationships between zones. Perception of where one is relative to the private activity spaces, and the limits to which one may belong or become part of that space, may again be described in prepositional terms. One's ability to view in or to go into a space affects one's knowledge of the activities it houses, and may allow or discourage learning from the public environment.

The most recognized task of the enclosure is the making of a weather edge between indoors and out; this function is not covered by the scope of this thesis. Rather, I am concerned with the capacity of the enclosure to mediate between public and private realms in an assumed sheltered place, where in and out depend on social, rather than climatic, controls.

A number of physical characteristics can be used to define edges. These include their height, their lateral position relative to the path, their length, and the directions they establish, all of which may influence the quality of one's experience of the places they define.[12] The attributes which I am most interested in, however, are limited to those which affect the porosity of the edges and their ability to allow physical or sensory access to the areas behind them. This ability is conditioned both by the physical character of the edge and its manipulability. The edge should then be viewed as a selective filter for the interactions of public and private realms.

In addition, the edge may function as a support for social interaction in the public realm. The experience of passing by or along an edge is probably a more customary occurance than the act of passing through it, so the quality of treatment of the edge is an important ingredient in the qualities of the public realm. Appropriable niches along the edges of the public path, for instance, may allow the path to have qualities of place and not just of movement.

The following section attempts to catalogue single and multiple layer edges according to their ability to expose or protect the inside space and to provide support for a lively public environment. Though drawn as if strung out

along a path, the edges are really analyzed as sections perpendicular to the path and cutting through assumed public and private zones. As mentioned earlier, they have been isolated from any real context and set into this artificial, diagrammatic context in order that they may be analyzed as individual elements. In reality, of course, the edge would be experienced as a dynamic spatial and temporal experience, qualified by its relation to ground configurations and to the height and disposition of the cover overhead.

SINGLE LAYER EDGES 1 & 2

The following two drawings and their keys depict edge conditions which respectively allow or control sensory and physical access to the private spaces beyond. Each is divided into four types of which several examples are given and described in the key. The shaded breaks in the ground plane are meant in each as indications of the intensity of access and the degree of penetrability that characterize each edge type. These are based only on educated guesses about each type; without a greater physical and social context, it would be impossible to be more precise.[13]

Single Layer Edges 1 deals with edge types that typically allow sensory access to an activity space or which are deliberately set up to protect the activity from scrutiny. Though it is generally assumed in these illustrations that the activity space is immediately adjacent to the edge, the edge treatments illustrated in this set may allow the activity to be removed from the edge, perhaps on a different level where physical access is not allowed. When the activity is distanced from the public edge by the addition of other edge boundaries, however, it belongs to the discussion of multiple layer edges which follows.

Single Layer Edges 2 depicts edge conditions which typically allow physical access to activity spaces beyond. Though these edges may exhibit many of the characteristics of sensory access shown in the first set, they add another dimension to accessibility, that of direct interaction among people. In addition to aiding one's understanding of where one is, potential access to a space or activity may allow the prepositional relationships to assume an active mode, as entering <u>into</u> a space.

Sometimes, this active relationship is a function of social roles or frames of reference of those in the public realm. Looking into, versus seeing in, is an active mode which, while encouraged perhaps by the edge type, nevertheless is a function of the person's decision to look. The edge types that offer physical access to spaces off the public path are especially inviting, or conversely inhibiting, of active relationships.

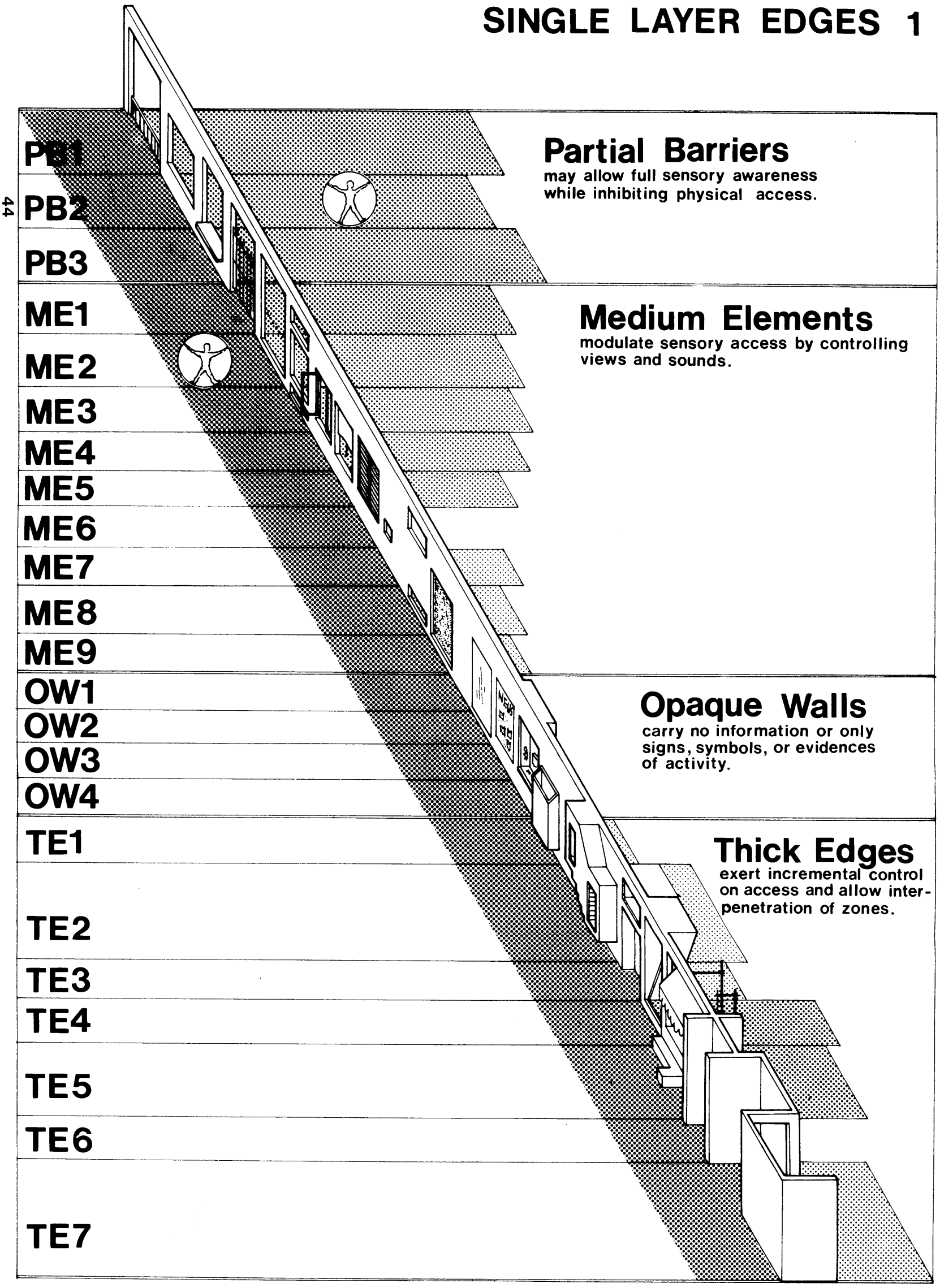

PB1
PB2
PB3
ME1
ME2
ME3
ME4
ME5
ME6
ME7
ME8
ME9
OW1
OW2
OW3
OW4
TE1
TE2
TE3
TE4
TE5
TE6
TE7
Partial Barriers
may allow full sensory awareness while inhibiting physical access.
Medium Elements
modulate sensory access by controlling views and sounds.
Opaque Walls
carry no information or only signs, symbols, or evidences of activity.
Thick Edges
exert incremental control on access and allow inter-penetration of zones.

Figure 2

KEY TO SINGLE LAYER EDGES 1

Partial barriers, as they are defined here, discourage physical access, but put no constraints on sensory awareness of spaces beyond the path. Like implied boundaries (see Single Layer Edges 2), their existence extends the experience of those in the public zone beyond the walkway and allows the sight and sound of activities to filter out to inform those public spaces. They may not lead directly to activities, but may be used in conjunction with level changes, for instance, to provide a railed overlook with views into spaces below, an opportunity not provided by implied boundaries.

Rather than being divisive, partial barriers sometimes provide the means for uniting people across the edge; the third example, a counter, represents a use surface that is potentially uniting. The examples shown here are seen as relatively permanent pieces of the edge; partial barriers may also be defined by the placement of furnishings and similar objects which form edges that delineate zones of use. (See discussion under Finishes.)

PB1 Partial barrier -- railing. The railing offers an impediment to movement but is open and low enough not to pose a barrier to vision over of through it. The railing here reads as an inset rather than as part of the wall, which, along with its screen-like character, increases the feeling of openness, especially when one can perceive the ground surface beyond (or whatever is at the same level as the path). The existence of the overhead element, however minimal, makes this barrier read as a larger plane and as a more defined edge than a partial wall or a free-standing railing (not illustrated here) would.

PB2 Partial barrier -- wall opening. The opening in the wall is smaller and more defined than in the previous example, and may begin to frame or limit the view through it. Its wall-ness, while not deterring sensory access, may emphasize the act of looking through it.

PB3 Partial barrier -- counter. The counter represents a use surface that is common to both inside and out and which thus has the potential to bring those in the two realms together.

Medium elements modulate sensory access by controlling the sights and sounds they transmit, either by their form or by their operability. Typically, they are windows which allow varying experiences of the private realm according to: their size(s) and proportion; their transparency (see Finishes); their operability and the way they operate; and their placement vertically within the wall where they affect one's range of vision, and laterally relative to the inside space where they affect what is seen.

Of course, there are innumerable varieties of window types to be found; these examples attempt to set out some of the issues involved in their modulation of the sensory experience of those in the public realm.

ME1 Medium element -- screen. The screen disallows physical access but allows both visual and auditory access; the "message" is one of constraint on entry. the screen could easily belong in the category of partial barriers, but is included here because of its capacity to fractionate one's view through it, an attribute which makes it act more as a medium.

ME2 Medium element -- glass wall. The glass wall limits auditory exposure but maximizes the visual experience by setting up an edge meant to be seen through.

The size and transparency of the opening allows almost complete visual connection between the realms.

ME3 Medium element -- glass wall. This example is essentially the same as ME2 above, but offers greater definition of the wall as barrier and thus begins to frame the view to the inside. The lower sash may be of a height and dimension that would allow one to lean on it; looking inside could become more intent and less casual than in ME2.

ME4 Medium element -- windowed wall. The size of this window begins to delimit the field of vision by framing the picture plane. The fact that it may be opened offers the possibility of including auditory communication between the realms. When it opens in, it may act like a partial barrier (PB2); when it opens out, it also serves as a signal to those in the public realm that communication is being permitted in that place. Other types of opening devices may cause the window to allow various degrees of communication or access.

ME5 Medium element -- window and window shade. The easily manipulable control of the window shade introduces personal preference, timing, and partiality

of control as variables.

ME6 Medium element -- shutters or blinds. The manipulable control shown in this example gives greater and more permanent protection than the window shade example, both through the quality of the barrier and more important, the double-layering it causes in the thickness of the wall (there is assumed to be glass behind the shutters). Opening or closing of the shutters may allow partiality of barrier, but it requires a conscious decision and considerable effort. The issues concerning its opening out into the public realm are the same as those discussed in ME4.

ME7 Medium element -- peephole or slotted view (not illustrated). There is limited visual access allowed through these elements; the field of vision is limited by their placement and size. The public must make a conscious effort to look in, but the existence of such an opening may act as an invitation.

ME8 Medium element -- high and low windows. These allow extremely limited visual access; only an awareness of the existence of a space beyond may be permitted. The placement and size determine the

degrees of access and control. If the ground level of an activity space is below that of the path, it becomes fairly easy for those in the public space to look in the bottom window over the top of the activity.

ME9 Medium element -- frosted glass window. Translucency (see Finishes) allows some awareness of activity inside: lights, outlines of furnishings, colors, movement of occupants; but the sensory awareness may be extremely limited.

Opaque walls completely shield activities from public scrutiny. They may carry information about the activities only indirectly, by signs or symbols that represent them. The surfaces of the walls may be treated in such a way as to signal changes in zone that correspond to changes in the activity spaces beyond (see Finishes), or they may be treated as a means for embellishing the public realm or for providing information, directions, etc.

OW1 Opaque wall -- blank. The blank wall acts as a full barrier and conveys the least information about the activities it shields.

OW2 Opaque wall -- mirrored. The wall acts as a full barrier to activities inside; its surface treatment literally reflects the public space and thereby diverts one's attention from discovery of what is behind the wall.

OW3 Opaque wall -- bulletin boards or exhibition panels. These act as signs of what might be inside, though they may have been placed there only to adorn and enliven the public's visual environment.

OW4 Opaque wall -- display case. The wall acts as a full barrier but the display may give evidence of the activity inside. Some display cases have doors at the back; these would serve as evidence of how the case is serviced, who might control its use, and thus perhaps what might lie beyond. This example approaches the category of thick edges, but it is presented here because it remains a small scale and static means for informing the public spaces of the activities in the private realm beyond.

Thick edges are made up of closely placed elements which break the plane of the wall between public and private realms and thereby offer the opportunity for greater interpenetration

of zones. The increase of the number of elements, or the complexities in the treatment of the wall, may also allow incremental control over access. Thus thick edges may increase the potential for communication between realms at the same time as they increase the variety and means for manipulating controls over access.

Thick edges, more than the other categories, may take on particularized forms according to the context and the uses and controls they may provide. As they become very thick, or composed of many elements, they may begin to overlap the category of multiple layer edges.

TE1 Thick edge. Appropriable space on the inside (e.g. seating nook) is recognizable in its negative form from the public realm and thereby may give a sense of activity inside. In this particular example, the window at the top of the nook might, by emitting light, provide further clues of activity inside. Those inside would become aware of the existence of another space beyond.

TE2 Thick edge. The form of the inside stairway is recognizable from the outside. One's awareness of activity is, in this example, enhanced by the placement of high windows within the edge.

TE3 Thick edge. Inside and outside coexist in section. Appropriable space on the outside is accompanied by limited visual access through the high window with only allows awareness of the existence of space beyond.

TE4 Thick edge. A sloping wall, shown here as windowed, draws attention to the inside by directing the plane of vision. This may also act as a protective device by limiting one's field of vision to a particular area.

TE5 Thick edge. The cover, level change, and use-surfaces associated with this edge are of a fairly extemporaneous nature. Small, perhaps manipulable elements may make a complex edge with potential for personal control, change, and variety. Here, the basic frame of the wall edge allows smaller, local changes to make up the thick edge.

TE6 Thick edge. Double niche allows the inside and outside to coexist in plan. The configuration may or may not foster awareness of the other side, depending on the treatment of its components.

TE7 Thick edge. The inside and outside coexist within the thickness of the wall. Potential for access and communication between them occurs within that thickness, which may in turn take on any of the characteristics of the previously discussed single layer edges (of those in Single Layer Edges 2). Those in the public realm must claim the appropriable space in the edge (the path bulge) before being able to become completely aware of the inside spaces; this may act somewhat as a protective mechanism, since the act of stepping off the path into such a niche means leaving the mainstream of the public path and assuming a more private role, though not that of those engaged in the activity inside.

SINGLE LAYER EDGES 2

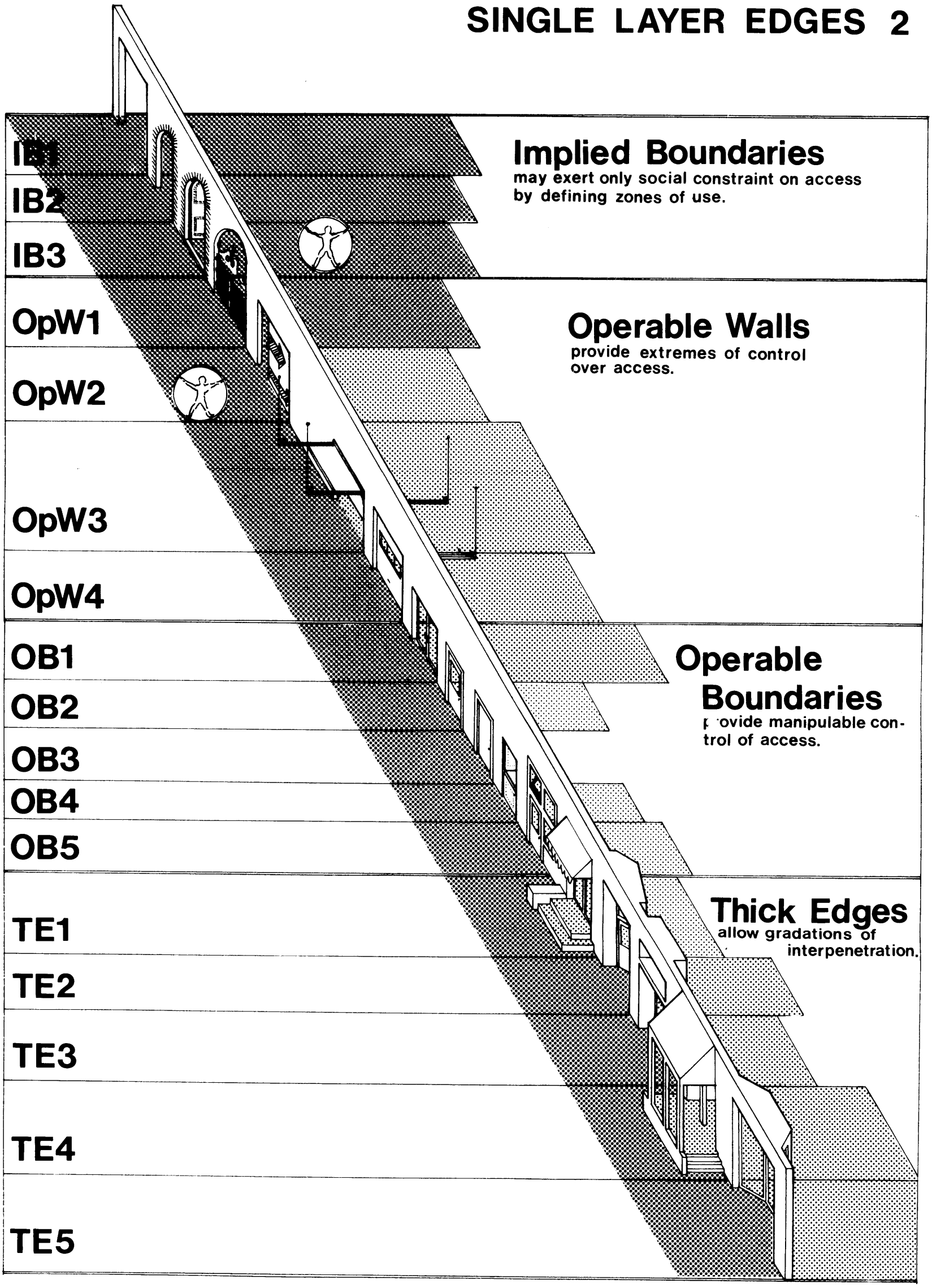


Figure 3

KEY TO SINGLE LAYER EDGES 2

Implied boundaries defined by the enclosure may characterize adjacent areas as different from each other without separating them completely. As edges, they establish perceivable zones beyond the public path which may be penetrated or even occupied, depending on the surrounding social and physical contexts. The strength of definition of the implied boundary and the size and shape of the opening relative to the rest of the edge determine the quality of passage and constitute the major controls over physical and social exposure and access. The inherent gate-like quality of strongly articulated implied boundaries may exert constraint on entering by emphasizing (from simply demarcating to celebrating) the act of passing through or by the boundary. Narrow (one-person or small door size) openings make one inclined to slip through, whereas openings that are wide enough to accomodate several people at once allow more casual crossings of the edge.

In the cases shown, and in the majority of cases found, the act of passing through or by is reinforced by the additional prepositional relationship of passing under. The physical member which one passes under may simply be a piece

wall or, more recognizably, the lintel or beam that holds up what is above. When the wall is conventional six-inch interior construction, one's sense of passing under is weak, whereas thicker walls may be of sufficient dimension to provide some cover as well. (See the following discussion of implied and edge-related cover.)

The presence of a number of implied boundaries lining the edges of the public path may make those edges porous, allowing sight and sound of activities beyond them to filter out to the public realm. In a less hieratic environment than that of M.I.T.'s double-loaded corridors (or even of that environment implied in the drawings of the categories of edge types), implied boundaries parallel and perpendicular to the path, along its edges and encompassing it may allow great freedom of movement through the environment while helping to demarcate possible paths and identify different zones of occupancy or use.

IB1 Implied boundary. The boundary is weak, defined only by the structure. Maximum exposure and access are allowed.

IB2 Implied boundary. Maximum exposure and access are still allowed, but the physical form begins to define the edge more strongly than in IB1. The form

helps determine its potential as a gate by placing emphasis on the act of entry.

IB3 Implied boundary. Strong. Maximum exposure and access are allowed, but may be modulated by strongly felt social constraint: the act of entrance is reinforced by the fact that the threshold and the implied potential closing of the doors delineate another realm beyond.

Operable walls are large and manipulable openings in the edges of the enclosure. They have the potential for the total openness and communication between realms that characterize implied boundaries, as well as for varying degrees of physical and sensory constraint found in operable boundaries, opaque walls, and medium elements. Thus they offer extremes of control over access and privacy.

The most salient characteristic of operable walls, compared with operable boundaries, for instance, is the size of their opening which offers maximum opportunity for connection. The operable wall may be necessary for practical reasons of moving large objects or many people across or up to its edge, or more importantly here, it may exist for the purpose of establishing close relationships between public

and private realms. The most important relationship allowed by the operable wall is that of timed total connectedness.

The completely open boundary may array the activities inside for full view from the public realm. The fact that the boundary may be perceived as operable means that one understands one's relationship to the private realm, that one is intended to see and hear (and sometimes to participate in) the activities inside. The open boundary may in fact read as an invitation to look or go inside. The activity thus has the opportunity to arrange the public's formal or informal relationship with the ongoing activities.

The opening of the wall also allows the activity spaces inside to become an extension of the public realm, or allows the activity to spill out onto the public walkway and subsume it. The ability to claim and to manage the public path is influenced here by the size of the opening and thus by the degree of connection with the rest of the private space. The energy necessary to control the operable wall is not only a physical, but more importantly, a management issue, and must attend to the problems of timing. Since the prepositional relationships that are made possible by the operable wall go beyond locational ones (perceiving where one is relative to others) to enable and encourage more

active, deliberate relationships (like entering into, looking into -- see the description in the Preface of those German prepositions which may take either dative or accusative cases depending on this difference), then the controls between public and private realms must be assumed unimportant or they must be managed in a more complicated manner than simple manipulation of a boundary.

OpW1 Operable wall -- screen. The screen allows visual and auditory access at all times. It may act as a strong implied boundary even when completely open because of its emphasis on the "gate" quality of entrance.

OpW2 Operable wall -- sliding hangar door. This example allows a large opening which may act as a relatively weak implied boundary when open. This type of closure allows some physical and sensory access when the door is only slightly open; the door itself may be treated to allow sensory access when closed. When totally closed, there may be little evidence that the door opens: graphics may call attention to that potential, but otherwise only the edges of a track and perhaps a handle would indicate operability. Unless segmented, the door requires an equally large, and usually blank, surface against which to slide.

OpW3 Operable wall -- slide-up garage-type door. Again, a large opening is allowed. In this example, the door would slide up and out on a track suspended over the public path amd would thus make an edge-related cover when open. The potential connection of inside and outside is explained and predicted by the track.

OpW4 Operable wall -- garage door opening inward. This door may allow a large opening in the wall without many outside clues to its operation unless, as shown, it may be opened from the outside. Depending on the ceiling height, the opened door would provide a thick implied boundary along the edge. As shown, the door may be windowed and thus allow some limited sensory access when closed.

Operable boundaries imply the existence and allow the entrance of areas beyond the public realm. Even when the door (which is the typical operable boundary discussed here) is opaque and flush with adjoining wall surfaces, its mere occurance is a clue to the existence of an accessible space beyond.

When the public path is an enclosed, interior space and

windows are not needed for light and air, the door often functions as the only medium element that allows public scrutiny of relatively private working and meeting spaces. They may be treated to allow sensory access even when closed. Because they are operable, doors also introduce personal preference into the shaping of the public-private edge. An inside space can be experienced by those in the public realm simply because the door may be open or ajar. Several stages of control may be easily achieved by, for instance, leaving the door locked, closed, half open, or fully open. Doors also function as gates to activity spaces and thereby complicate freedom of sensory and physical access with degrees of social constraint.

Thus the treatment of doors and entrances, like that of windowed edges, offers a variety of means for enriching the public environment by establishing relationships with the private realms beyond. Like windows, door types are innumerable, so only a few are illustrated here to point out some of the possible relationships they define.

OB1 Operable boundary -- double glass doors. They may allow maximum visual access when closed and act as an implied boundary when completely open. The strength or weakness of the boundary depends on, among other things, the height of the ceiling and

the size of the opening relative to the piece of wall it penetrates. For instance, a very high ceiling or a long stretch of wall may make the opening seem more constrained than an enclosure closer to its size.

OB2 Operable boundary -- windowed door. Depending on its translucency or transparency, the window in the door may offer awareness of the activity inside whether or not the door is open. The window and the door together may determine what part of the activity space is accessible.

OB3 Operable boundary -- solid door. This type offers the most physical and social constraint of any of the operable boundaries. It offers only evidence of the existence of some space behind it, but allows no communication unless (or until) the door is opened.

OB4 Operable boundary -- Dutch door. The door may be operated in one piece, as a solid door, or in two sections, allowing visual and auditory communication through the top while limiting physical access by closing the bottom. Like the use surface that unites people across the edge (see Partial barriers in Single Layer Edges 1), the Dutch door offers the opportunity

for direct exchange across the edge.

OB5 Operable boundary -- door with associated windows. The windows associated with the door increase its potential to act as a medium for communication between inside and out. Variations in the character of these windows (some may be frosted, cthers transparent; some may be fixed, others openable,etc.) determine the degrees of access and constraint. The clustering of doors and windows emphasizes that spot as a locus of establishing relationships between the inside and outside.

Thick edges that allow physical access, like those described in Single Edges 1, provide the means for the interpenetration of public and private realms. Typically, they define entrance zones as transitions between the path and private spaces beyond. These may provide appropriable space within the public realm or the opportunity for those in the private realm to place themselves (as on stoops) within the public view. Or they may become the means for allowing variable protection for the activity inside.

TE1 Thick edge. The cover, level change, and use surfaces associated with the edge emphasize the

existence of an opening. They may act to reinforce the social constraint of the edge or to encourage communication and relationship between inside and out. Though within the public zone, they may be recognized as belonging to the public face or as representing the activity inside, especially is they are of a temporary nature, like the awning or like signs.

TE2 Thick edge -- angled and recessed entrance. The angle of the entrance and its associated windows seems to acknowledge the direction of movement along the path and one's field of vision from the path. Like the canted window (TE4 in Single Layer Edges 1), the angled entrance may reinforce a particular view into the interior space.

TE3 Thick edge -- entrance niche. Appropriable space within the thickness of the wall may define the entranceway as belonging to someone. Recessing may also serve to remove it from the experience of those in the path, at least in that one may have to turn one's head to get a good look inside.

TE4 Thick edge -- colonnade or porch. The entrance projects out from the edge and calls attention to itself.

It may read as an appendage to the edge or as an extension of the inside zone. In either case it may provide a significant public face for the activities beyond. The level change here provides a special lookout station, slightly raised above the path. Other, longer versions of this or similar configurations could act as colonnades (which begin to overlap the multiple layer edges category) and establish a special path of movement immediately adjacent to the edge and slightly removed and protected from the rest of the path.

TE5 Thick edge. As with the last example in the Single Edges 1 set, the inside and outside may relate to each other within the thickness of the wall. The fullest view of the inside is obtained just as one enters, though some awareness is gained from the path through the angled windows. These angles may also allow expansive views of the inside.

LAYERING WITHIN SINGLE EDGES

In addition to thick edges which may have several physical layers within the edge definition, another type of layering may occur within single edges. That is the confluence of types within or in conjunction with each other. Though one is bound to be able to point out the coexistence of several edge types along a path, these are more often sequential combinations of types and, though very interesting and revealing of what is going on, are not really layering as described here.[14] Layering, rather, refers to the deliberate conflation of edge types in order to strengthen or to enrich the message of the edge as establishing relationships or as providing perhaps several levels of information.

Signs and finishes, because of their relative ease of application or manipulation and their small scale (as furnishings of the environment or as surface treatments) are elements which are particularly helpful in layering within single edges. Though they may employ relatively subtle means in themselves, when combined with other edge types, they may become powerful indicators of prepositional relationships showing where one is and belongs.

Several examples taken from M.I.T.'s main corridor might illustrate this. One example of this phenomenon has already been described: the association of doors and windows (OB5) in the making of an entrance reinforces sensory and physical access to the inside spaces and signals their location as one that encourages communication.

A second example might be characterized by contrasting two different types of visual information carried in the main corridor. One is the hanging of bulletin boards and exhibition panels along the edges. These may be seen more as examples of OW3 (Opaque wall with signs adorning the public realm, described in Single Layer Edges 1) than of layering because they do not reinforce other information about what is happening behind the walls. A salient example of layering, however, occurs in the edge between the corridor and the Bursar's Office. A mural encompassing the whole piece of wall (it helps that this section of wall is seen separately from the rest of the corridor) pictures a dollar bill, through which two entrances lead to a waiting area in front of the tellers' stations that form a second edge (PB3, use surfaces that unite, and here also have a recognizable form that one associates with their use). Thus the combination of the mural, which is both finish and sign, and the two entrances with their particularly fancy moldings (perhaps yet another iconographic association!) and clear glass doors (OB2) which

are always open when the office is operating, combine to give several layers of information about the activity. The fact that the second layer gives further evidence of the activity reinforces the impact.

The public edge of the Bursar's Office thus represents layering within the single edge where part of the information involves the iconographic association of an image with an activity. This may serve to point out that layering of this sort appears to be particularly dependent on the social and physical context, and should be analyzed and designed in that light.

MULTIPLE LAYER EDGES

The following multiple layer edge matrices and examples illustrate combinations of single edge types as they might be encountered in moving perpendicular to the imagined public path, and examine issues involved with their combination. The multiple layer edge may be made up of any number and virtually any combination of edge types, such as those described in the two preceding single layer edge categories.

The matrices diagram combinations of eight representative edge types. These combinations may be analyzed for their capacity to act as selective filters for the transmission of information about relationships between areas and activities. As combinations, they exhibit many physical conditions, from porous to totally opaque, from manipulable to permanent, and so on. Some of these issues are discussed in the general key which follows the matrices; others are examined in the pages described as multiple layer edge issues, which also take up the parameters of distance between layers and alignment of layers.

The first matrix which illustrates double layer edges, is seen as the basic set of types. The second matrix of

three layer edges represents only a sampling of further combinations based on the first matrix. These are drawn to indicate the complexities involved when many layers are combined and to show something of the overall penetration allowed (when no longer penetrable, the types are dropped from the matrix).

As seen from the single layer edge categories, some of the edge types can function as final boundaries while others are penetrable or porous. A final boundary as the first layer sets the edge of the path as the limit of perception of the activity realm, whereas when the final boundary is several layers removed, the ability to perceive the zones becomes a determinant of how much the activity may be perceived from the path. The layers of boundaries may act as intermediaries between relatively most public and most private realms by demarcating zones of transition between them.

The piling up of layers thickens and complicates the edges between realms. It allows incremental control over the publicness or privacy of an activity. Rather than classify one side of the boundary as strictly private and other strictly public, the thickened multiple layer edge may define zones within which an activity can sort itself out into more or less accessible components. Thus, while the thickened edge may be used as a protective device against unwanted

public intrusion by providing multiple control points, it may also, by virtue of its protectiveness, allow greater public awareness of what is happening inside. A studio, for instance, may allow the place where works are shown for discussion and where meetings take place, to be perceived by those in the public realm; the places where the work is done may be protected by being behind this area and only faintly visible from the public path. In a relatively small or open area where the activity itself may not provide enough of a barrier to be protective (or where the activity may only happen occasionally), multiple layer edges might help define the place for meeting as separate and removed from the working stations, and might exert the capacity of its edges to control the sensory access to the more private activites beyond.

Multiple layer edges, when seen in conjunction with the ground and the cover, begin to comprise a framework for dealing with physical disposition in space of activities; they help an activity to dispose itself so that its most public components can be perceived by those in the public path while their more private working areas may be shielded by the character of the edges or by the distance, or degree of remove, allowed by the multiple boundaries.

MULTIPLE LAYER EDGES: Matrix 1

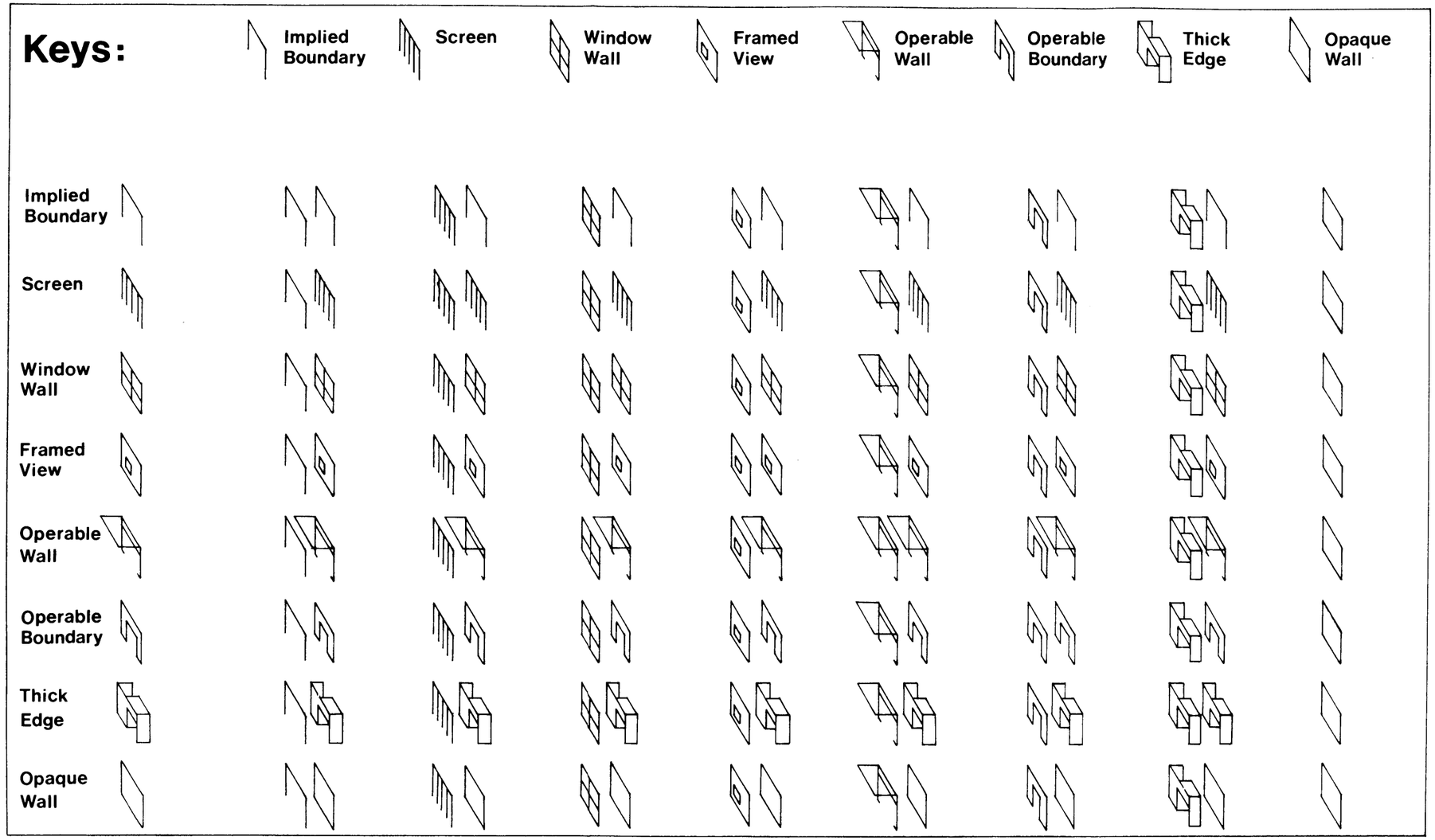
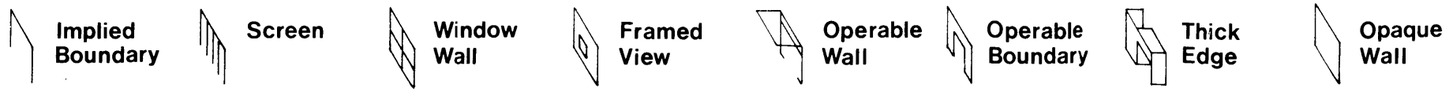
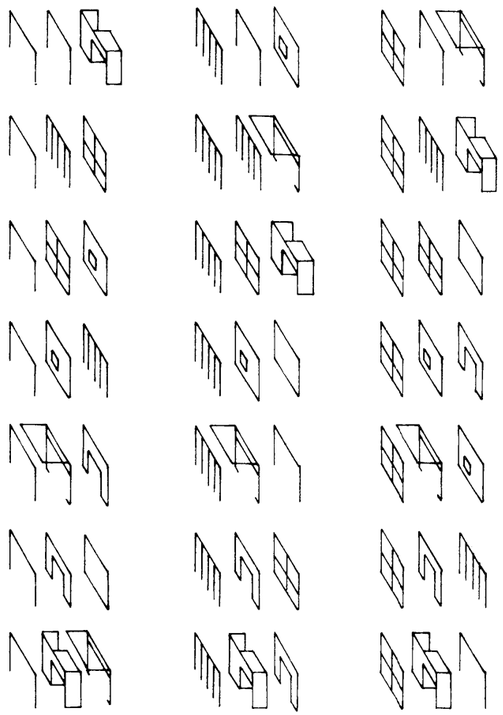


Figure 4

MULTIPLE LAYER EDGES: Matrix 2

Key:





NOTES:

Matrix 2 was constructed by adding a third edge type to each double layer example in the first three rows and columns of Matrix 1. The other double layer examples have been eliminated because they become so impenetrable that they are perceived as final boundaries.

Each row and column carries as the third layer the full set of edge types minus the controlling one for that set. Thus the first row and first column do not use the implied boundary as a third layer. The matches were made intuitively, combining relatively penetrable layers with relatively opaque ones and vice versa. These only begin to show the possible combinations.

Figure 5

GENERAL KEY TO MULTIPLE LAYER EDGES

Most of these edge types have been characterized in the keys to the single layer edge categories. This section sets out additional issues which particularly condition their combination with other layers. Rather than discuss each item in the matrices individually, only general observations are made here. The following section discusses specific issues concerning the consequences of types of combinations.

Implied boundaries. As the first layer edging the public path, the implied boundary allows easy physical and sensory access, conditioned only be social constraint.

As an inner layer, the implied boundary provides an additional degree of remove from the path. Depending on how strongly the boundary is defined (compare IB1 and IB3), it may differentiate between an outer, perceived zone, and a more private inner zone only partially open to scrutiny.

Screens. Screens are important elements in establishing perceived zones and for enforcing complex and subtle associations among zones.

As the first layer, the screen extends the sensory awareness of those in the public realm into neighboring

spaces. The character of the screen determines the degree of sensory access.

Depending on the penetrability of subsequent layers, screens may serve both as connectors and as separators. When coupled with relatively penetrable inner layers, screens modify the entrance to the private realm and act as partial barriers, or separators. When combined with a relatively opaque inner layer, however, the screen causes the space defined to assume an intermediate character; such a space may seem to belong more to the public than to the private by virtue of the ability to communicate through the screen, but, like a niche off the side of the path, it may become relatively private, in social terms, when it is occupied.

As inner layers, screens serve further to fractionate one's visual access to the private realm. They may also provide minimal definition to subdivide an area into smaller zones; their partiality allows an awareness of activities and at the same time sets up a framework for defining and protecting one's privacy.

Window-walls. Window-walls along a public path invite full view of the inside spaces. Their size characterizes the whole edge as transparent; it is easy and natural for a passerby to include the inside, at least the first few feet inside, within his normal range of vision.

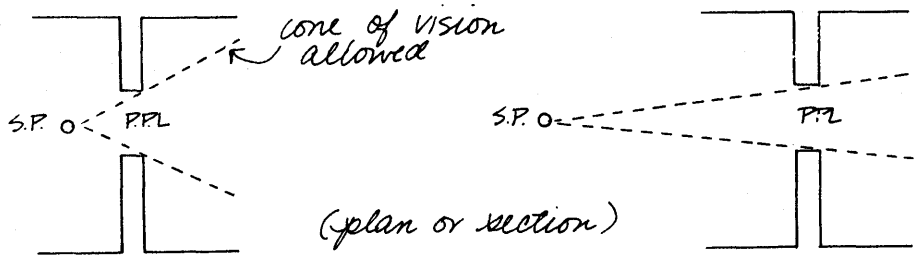
The ability to view what is happening inside depends on

the difference in light levels between inside and out: the lighter side is the one seen. When the outside is lighter (as it is during the daytime outdoors, for example), the glass reflects outward and makes the indoors seem relatively dark, thereby protecting the inner activities from full view. Under those conditions, it is especially difficult to see in when one is more than a few feet away from the glass, or when one is walking by without particular intention of looking into the space. This characteristic is especially important when the window wall is an inner layer because the degree of remove compounds the difficulty of casual viewing of the inner spaces.

Those on the inside would have full view of the outside, recognizing the transparency of the medium element, and would therefore not feel protected. When the outside is either darker or roughly equivalent in light level, the inside is completely viewable. When the window wall is far away from the first layer, it may begin to function, in perspective, as a large framed view, giving full access to a limited space, perhaps brightly lit for emphasis, from a distance that helps protect the privacy of those inside.

Framed views. Framed views, unlike vast window-walls, delimit the field of vision and viewing angle, and depending on their size and vertical placement in the wall, may require a deliberate effort to look into the space beyond.

They may thus be protective, especially in the inner layers, since the range of vision is further delimited by the distance of the station point from the picture plane:



As with the window-wall, the difference in light level between inside and out is not so important when one is standing right at the opening as when one is several feet or more away.

Operable walls. As outer and inner layers, operable walls imply an on-off kind of control depending on whether they are open or closed. When open, they may function as implied boundaries; when closed, as opaque walls or walls with windows or peepholes in them. Even when opaque, operable walls seldom function as final boundaries, at least not in outer layers, because they usually offer some clue to their operability. Awareness of spaces beyond may also be affected by operable walls' being partially open. As inner layers, they may act to frame large openings which, like stage sets, array the activities inside for public scrutiny.

Operable boundaries. In this study, operable boundaries are considered only in the form of doors and entrances. They imply the existence and potential entrance of an area beyond. Depending on their character, they may exhibit all the characteristics of medium elements and their control devices. Because they are operable, they offer the possibilities of personal control over access.

As inner layers, operable boundaries may offer clues and partial (even framed) views to inner spaces, or they may reinforce social constraint on access and thereby reinforce one's decision for privacy.

Thick edges. Thick edges allow the coexistence of public and private within the thickness of the wall and complicate their relationship by introducing the potential for individual change and control over access. They may contain many of the characteristics of the other edge types, but because of their thickness, they may function as relatively impenetrable boundaries.

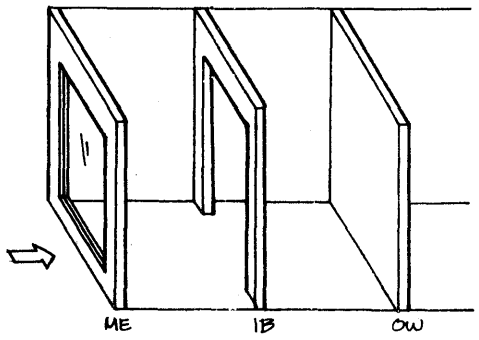
As outer layers, they enliven and complicate the edges of the public realm while providing the greatest potential for control over sensory access to the activities. As inner layers, they seem even more impenetrable and protective, but may also provide settings which are occupied and which one might imagine oneself into.

Opaque walls. As outer and inner layers, the opaque wall may allow no direct perception of what exists on the other side. It therefore functions as final boundary -- perceived or real -- and does not combine with other layers beyond.

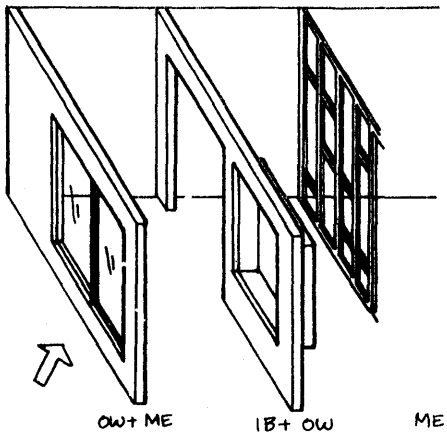
MULTIPLE LAYER EDGES: Issues

RELATIVE ALIGNMENT OF LAYERS

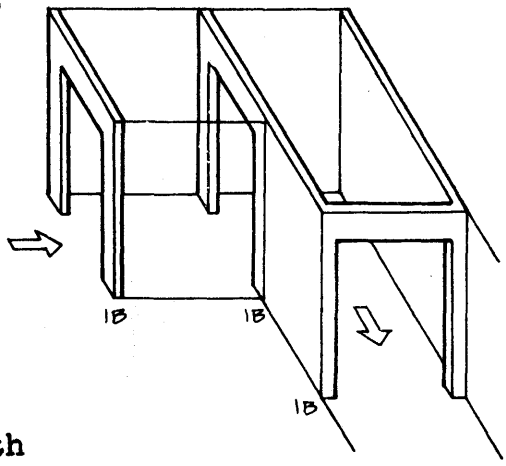
A. Direct alignment of layers encourages as much access to the inside as the combination of edge types allows.



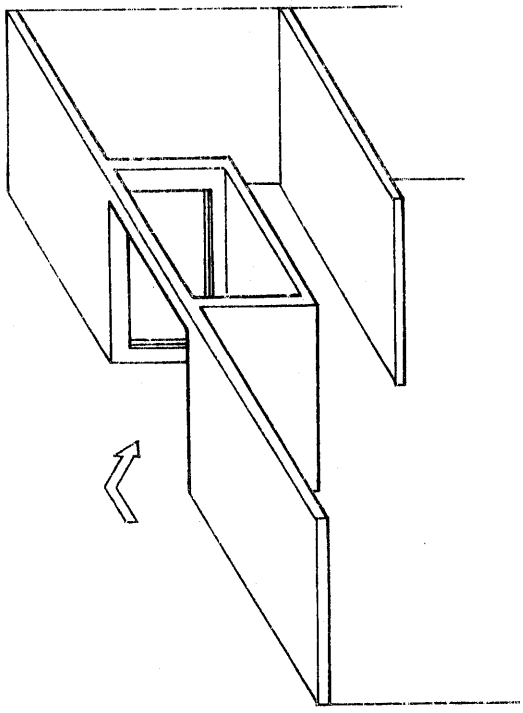
B. Non-alignment of layers individually or combined alongside each other may allow an outer domain meant for public scrutiny to shield other activity of which only glimpses may be seen. Non-alignment may act like partial barriers or screens to enhance or to fractionate one's experience of the inside activities.

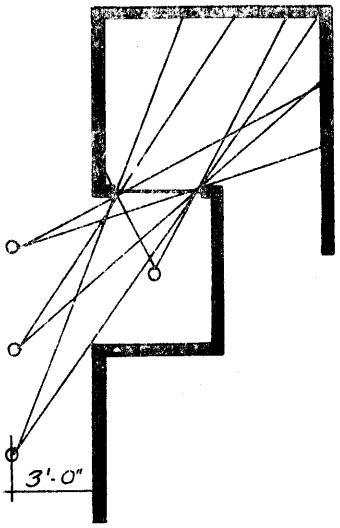


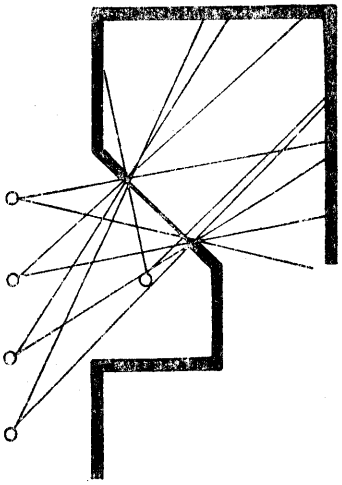
C. Change in direction of layers is the extreme case of non-alignment and is potentially the most protective. Any multiple-layered edge has the capacity to develop relationships through its edges, both those parallel and those perpendicular to the path, but change in direction refers to the capacity of the layers to channel one's passage through them.



D. The thick edge also carries the means for non-alignment which protects what is directly behind it. Articulation of the section taken parallel to the direction of the path determines what is seen from it; whereas if one steps into the niche, one has a straight-on view of part of the interior. The transparency of the wall is all that encourages views inside, compared to the lower example where the angle of view is acknowledged.



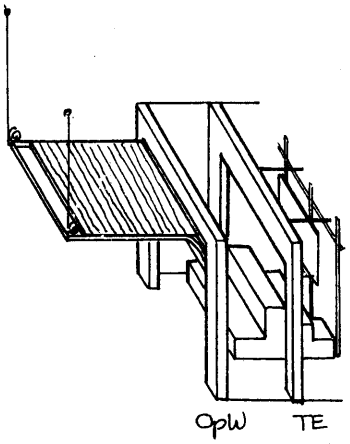




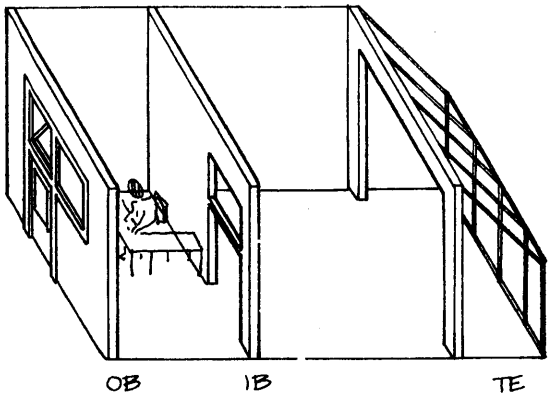
The angled picture plane acknowledges and exploits one's range of vision and viewing angle from the path to allow full views of the interior.

DISTANCE BETWEEN LAYERS

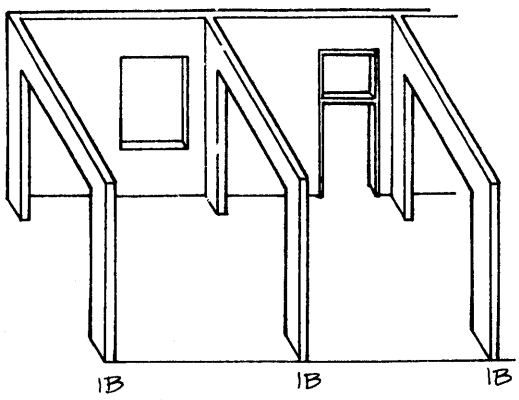
The distance between layers determines the spatial structuring of the edge and thus the patterns of occupying or using it and spaces beyond.



A. A small distance between layers may provide protection. Here the possibility of closing off access to the interior allows close placement of a second layer also offering protection.



B. The distance may be great enough to allow the zones to be occupied. Their habitaility, when guarded like this or when formally a vestibule, provides gatekeeping functions for spaces beyond.

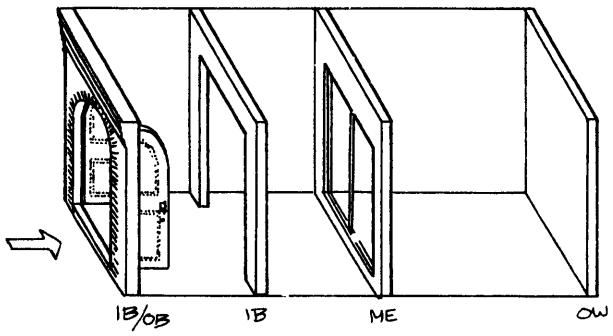


C. Distance between layers in section perpendicular to the path may allow entrance through the edges parallel as well, or treatment of those edges.

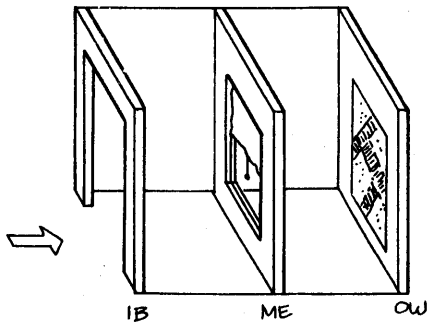
ORDERING OF PENETRABILITY OF LAYERS

The public edge of a path may be characterized by different degrees of penetration along it, not necessarily paralleling the degrees of final control over access to activities. Incremental control over access to activity spaces means that there are a series of "checkpoints," implied or real boundaries which individually and collectively modulate one's awareness of each zone and of inner spaces. Different signs or boundary definitions may control the access of different sets of people (e.g. limited vs. general public). The ordering of penetrability may both act as signs to these users and arrange the sequence of experiences as one enters or sees into a private zone.

A. The monumental gate exerts initial (social) constraint on access, but penetration becomes easier in subsequent layers.



B. Easy initial penetration gives way to stricter and stricter controls on sensory access to inside activity spaces.



Cover

Cover, compared with enclosure or ground, has the greatest capacity to shape space and thus to define relationships. The quality of being under is one of the strongest prepositional relationships; even the most minimal overhead elements (if they are in themselves or in their relationship or combination at least person size) have the ability to make or imply places under them. The cover creates a context just by its existence, even when not seen directly; its shape and character may suggest ways of zoning the spaces below, or may serve to embrace and unite a number of spaces.

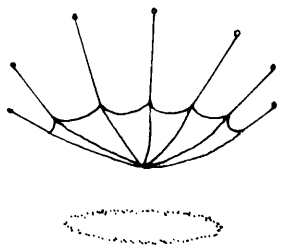
The cover may help define one area as different from another either by changing itself -- by relative change in height or quality, or by layering -- or by its use in conjunction with the ground or the enclosure. In association with ground or with edges, the cover may extend or reinforce the relationships they make with activity spaces and paths, or they may contradict them and thereby enforce new relationships. (Compare illustrations #14 and 20.)

Layering of the cover, which regretably is not discussed here in any depth, may be accomplished either through the piling up of smaller scale elements in conjunction with a main cover (finishes, light grids and systems, pipes and ducts, whatever), or through the juxtaposition of planes of cover. Both of these means were discussed in connection with edges. Relative height, numbers of layers, relative penetrability, relative characters, alignment and direction might all be discussed as issues involved in the layering of cover.

The following drawings and their key illustrate different qualities of cover, and some of the means it uses to establish relationships to activity spaces and paths below. Rather than being drawn as steeply angled isometrics as the other sets, these are shown as isolated perspective sketches. There are several reasons for this. Since the quality of being under was meant to be emphasized, the isometrics, with their bird's eye view, did not convey the message. Also, many of the complexities that can be shown using perspective were lost when the types were strung out in a line. Most important was the fact that each one has the potential to create a special context for the spaces below, and may be understood only within that reference. They were thus best illustrated with even a blank ground and blank edges. The context is still diagrammatic and artificial, but is not

perhaps so forced as those in the previous drawings. Perhaps later reconsideration of the ground and edge types would also allow them to be put in their own individual contexts.

COVER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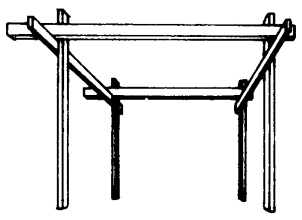
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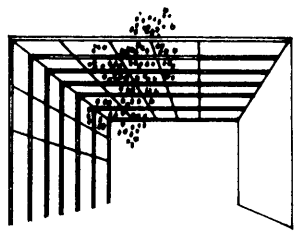
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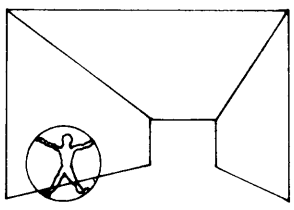
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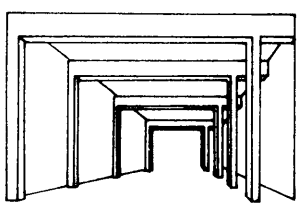
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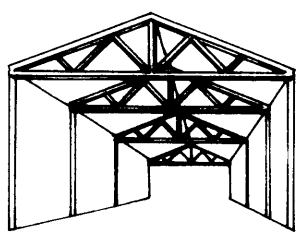
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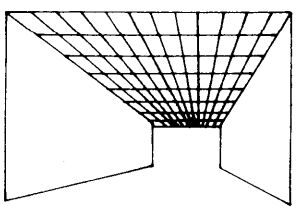
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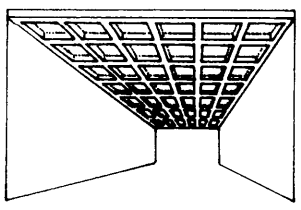
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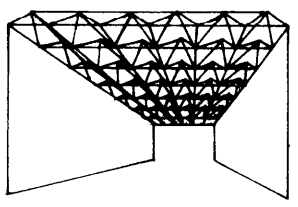
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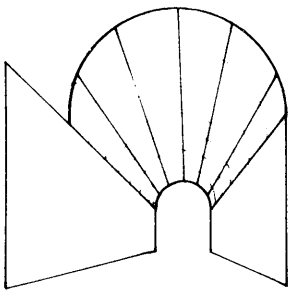
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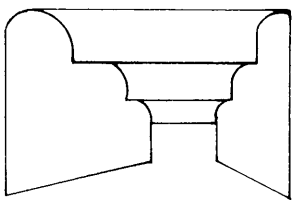
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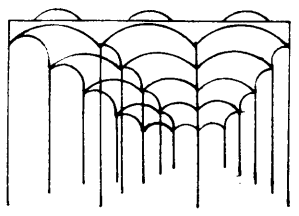
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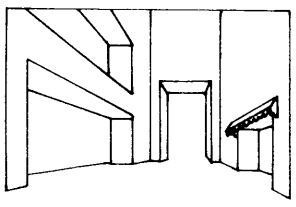
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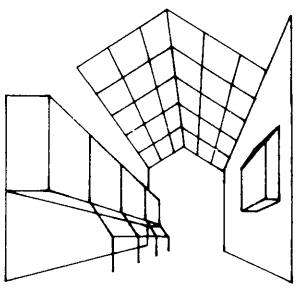
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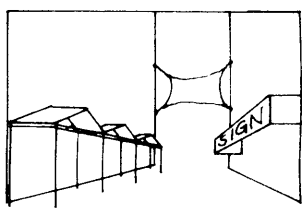

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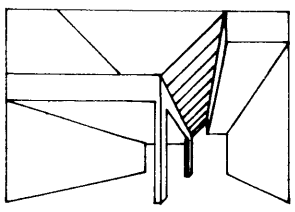
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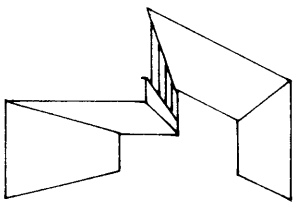
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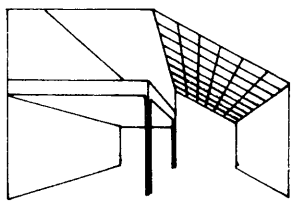
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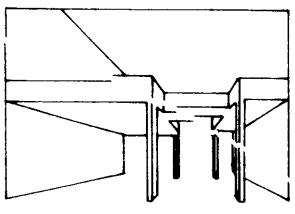
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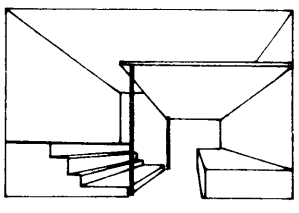
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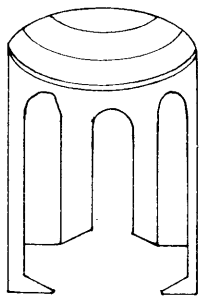

21

Figure 6

KEY TO COVER

1. CANOPY. The existence of an overhead object of at least person size, no matter how flimsy or transparent, is often sufficient to define a place underneath, even within an undifferentiated ground. The quality of being under is so powerful a prepositional relationship that it in itself may define space and make it place-like, even on a temporary basis.

2. FRAME. Cover may be implied by the existence and relationship of at least two overhead members. The four-post configuration of this example increases its place-making character at the ground level under the frame. Though its leanest state suggests cover or shelter, it does not provide real protection, in the physical sense, until its potential to grow and become covered with attached surface material is exploited.

3. SCREEN OR TRELLIS. As discussed in the edge examples, screens are partial boundaries which may nonetheless act as strong definers of space. The character of the screen's construction may allow attachment or even manipulation.

4. FLAT OPAQUE CEILING. Except by changes in color or texture, or by combination with other ceiling types or heights (see #16-19 below), the flat opaque ceiling offers little opportunity for establishing relationships among areas below. The opportunities for zoning space underneath may exist in the manipulation and variation of lighting or in the finishes.

5. BEAMED STRUCTURE. The repetitive structure of the cover is apparent and conditions the experience of the space below. Placement of the enclosure relative to the structure helps to delineate zones of use.

6. TRUSSES. Exposed trusses give legibility to the structural system and may influence the making of zones in the space below by shaping their cover. Their usefulness in establishing prepositional relationships may come from their suggestion of subdivision and their potential for attachment. Partitions may be attached to them, for example, and subdivide a collective space into individual work stations which retain their reference to the larger, shared space. This particular example, though the bottom chord produces a horizontal plane parallel to the ground surface, also establishes relationships from side to side and along a path of movement: the sloping roof makes being in the center and being at the edges a different spatial experience. Placement of the path

or the activity space relative to the center is an important zoning device which causes special relationships between the two areas.

7. FLAT CEILING WITH TRANSLUCENT PANELS. Like the flat opaque ceiling (#4), this type of cover may be relatively ineffective in establishing prepositional relationships beyond its existence overhead. Its grid does impart some order and texture to the surface, however, and the possibility of having some panels opaque and others translucent or casting uniform light increases its potential to zone areas in light and dark. Also, this particular type of suspended ceiling may give some small clues to its construction and thereby to the existence of another layer beyond. As with edges, opaque covers do not combine legibly with others in direct alignment.

8. COFFERED CEILING. Very little prepositional information is carried by this floor-roof system, either. Depending on the treatment of the edges, one may assume that such a system continues beyond the walls indefinitely. Occasional beams and columns may give some legibility to the structure, but are usually so widely spaced that they cannot be used specifically to establish the prepositional scale of information or relationship.

9. SPACE-FRAME GRID. This is essentially a two-directional version of the truss and offers more possibilities for establishing relationships than its coffered counterpart. The grid's construction allows attachment to it and, like the truss (#6), thereby aids the making of relationships below, though unlike the truss, it does not necessarily carry the suggestion of zoning.

10. BARREL VAULT. Barrel vaults offer linear, directional cover whose arched quality emphasizes the enclosure of space. Their scale determines how and how much they encompass the spaces below and thus the kinds of relationships they may suggest for those spaces. Historically, barrel vaults, like other types of vaults, have been painted, coffered, or otherwise decorated, and have thereby offered visual and intellectual associations as well as spatial relationships. Barrel vaults can also be made translucent or transparent and are then usually the final layer of cover.

11. FOLDED PLATES AND CROSSWISE BARREL VAULTS. These structures offer a rhythmic and repetitive cover with a character of continuous surface. They influence spatial relationships below differently from their larger counterparts that run parallel to the direction of movement.

12. MULTIPLE CANOPIES. A two-directional scalloped cover subdivides the space below into small bays which can then be zoned to uses depending on the ground and enclosure. this example is drawn as if it were an inflatable structure held down by tensioned cables: as such it would have a very different character from similar vaults of concrete, and might combine more easily with other layers of cover.

13. EDGE-RELATED COVER: INDENTATION. The walls of the edge may provide cover by being indented, either locally of continuously. They may define niches or appropriable spaces, or may be of a significantly large dimension to define arcaded walkways or activity spaces. The smallest such cover may only be wall thickness and may thereby articulate an implied boundary. The walls themselves may also contain the potential for extension and manipulation of cover, as the awning in this example would indicate. (See also the thick edges shown in Single Layer Edges 1 and 2) Also, in this example, the true height of the main cover is not discerned; the smaller covering provided by the edge thus offers overhead definition which one may associate with more directly.

14. EDGE-RELATED COVER: PROJECTION. The edges may also provide the opportunity for cover by projecting out over the path, either continuously or locally. These projections may have the potential for further extension or manipulation, as

shown here by the addition of a small screen. Compared with the previous example, the final or main cover is visible here, and may enforce associations between it and surrounding edge-related covering.

15. EDGE-RELATED COVER: ADDITION. Awnings, signs, and other superstructures of a relatively temporary nature add cover to the edge. These may vary according to personal preference and indicate changes in the nature and contect of the activity inside, or they may vary over time, with the seasons or in honor of a special event, for instance. Porches and other appendages of a more permanent nature may also belong in this category; they may define zones of transition from the path to an activity or signal the entrance to an inside space.

16. OVERHEAD LEVEL CHANGE AND SCREEN. Relative changes in the height of the cover are its principal means for reinforcing the differences among areas below. One would become aware of and associate spatially with the activities above, as well as with those in the spaces defined below. This example also illustrates a combination of different types of cover with the addition of a partial screen between the upper levels. The screen at the same time modulates the communication between upper and lower levels and establishes relationships between the upper levels.

17. CHANGE IN ANGLE OF COVER; CLERESTORY LIGHTING. The change in angle of the cover gives direction to the space it defines. (See also the truss example, #6) This is reinforced by the inherent directionality of the light source. The change in ceiling height and type, however, is the chief means for establishing the prepositional relationships in this example.

18. GREENHOUSE ROOF AND UPPER LEVEL MEZZANINE. The greenhouse character of the roof locates it as the final (at least perceived) layer. The special quality of light which the roof provides strengthens the association of upper and lower levels with each other under the light source.

19. MEZZANINES AND BRIDGE. Mezzanines partially block one's awareness of the full height of the main cover, but also call one's attention to various levels of activity spaces. The bridge may act as an implied boundary or gate that influences one's movement at the ground level, but also signals the existence of the upper spaces.

20. COVER INFLUENCING GROUND ZONES. The existence of a cover over part of the ground may influence one's understanding of where, or even what, a zone is. The ground and cover may coincide or conflict; the cover may force a dynamic set of associations within the ground. Layering of the cover

may thus emphasize one area over another and create commonalities which might otherwise not be formed.

21. DOME. This dome channels paths of movement on the ground from barrel-vaulted, directional spaces to a centralized, nodal place. The node, already latent in the simple crossing of paths, is made into a special place by the treatment of the cover.

Finishes

Finish elements include the surface characteristics, moldings, and other "details" of the ground, enclosure, and cover, as well as furnishings which may either supplement or replace those more permanent definitions. They enable and carry information about habitation and use, and help indicate separation or connections among zones.

They are of particular interest here because, in the terms of this study, they establish two kinds of prepositional relationships. Frist, they may reinforce the ability of the ground, enclosure, and cover to indicate relative locations and zones of occupancy. Second, they establish additional relationships described by the prepositions into, onto, and on, which indicate the ability of the environment to be manipulated, or simply used.

In conjunction with the ground, enclosure and cover, finishes may make the physical structure of the environment

legible and impart a social structure by revealing patterns of occupancy. Finishes combine to differentiate one zone from another: one knows when one has entered another zone because it feels different. They may also embody symbolic means to show relative importance among areas (ornamental moldings which may have certain associative power may, for instance, give one place a different character from another). Or, as described earlier, they may be layered within a single edge to reinforce one's perception of a special location. Finishes can also easily signal a change in zone before it actually happens, and thus provide clues to moving through a rich and complex place.

The into, onto, and on relationships provided by finishes do not directly affect public-private relationships in the ways just described. They may, however, provide evidence of habitation and claim of the environment. What they directly affect is one's ability to act on or manipulate one's surroundings, as they deal most commonly with the attachability of surfaces and with furnishings such as shelves, panels, counters, cupboards, and other, often movable objects which ine uses, for instance to put things into, store things on, attach things onto, or work on. Other types of furnishings such as tables and chairs may also be used to set aside special areas.

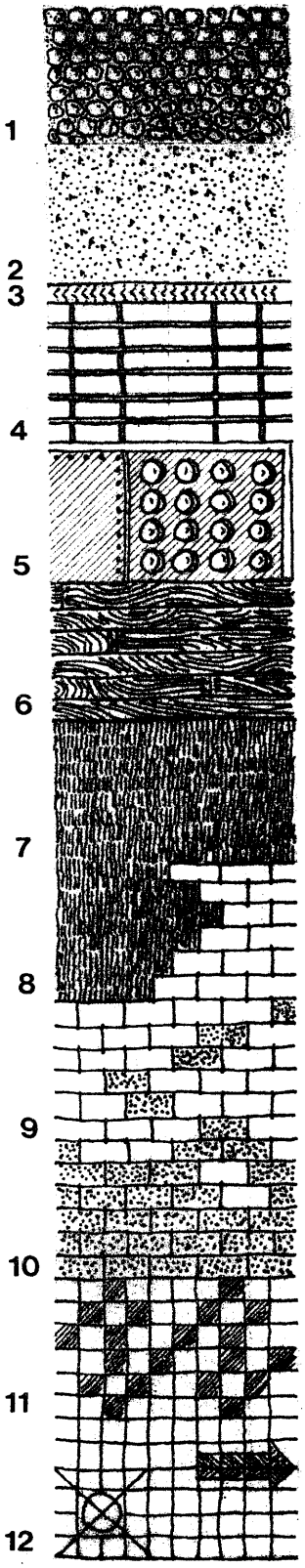
The ability to manipulate one's environment has been cited in the description of the image Home as one of the tests of belonging to a certain domain. The kinds of manipulation just described are most often found in private zones or adjacent to them, and may thus characterize them as different from a public, communal realm whose management is not so immediately apparent. The definition of private in this case moves from "needing control" to "understood as belonging to someone." At the entrance to a private realm, even the provision of a cupboard to put one's coat and hat into may signal that one has entered someone's domain and now may be a part of it, even in a marginal way. As one penetrates into the more private or controlled sections of that realm, lockers, shelves, desks, pin-up places, and so on may have a more personalized and impromptu manner.

Environments for the arts may, more than others, require that surfaces and furnishings be attachable and manipulable. These prepositional relationships may then be seen to characterize those locations where the arts are housed as different from other parts of the university.

The following drawings begin to illustrate both types of relationship just described. Changes in ground and enclosure surfaces, and transparencies of medium elements exemplify the first type. Surfaces for attaching stand for

the second. Rather than go into the issues of furnishings here, they are discussed in the context of the design for the photography program Home in the third section of this study. Many things, of course, are being left out: door and window types, surfaces and characteristics of cover, and the whole subject of light as a way of establishing prepositional relationships and their perception (since the weather edge is not discussed and therefore natural light is left out, it did not seem right to discuss artificial lighting either).

GROUND SURFACE FINISHES



1,2 Cobblestone or uniform hard surface gives special resounding quality and influences movement.

3 Thresholds separate areas.

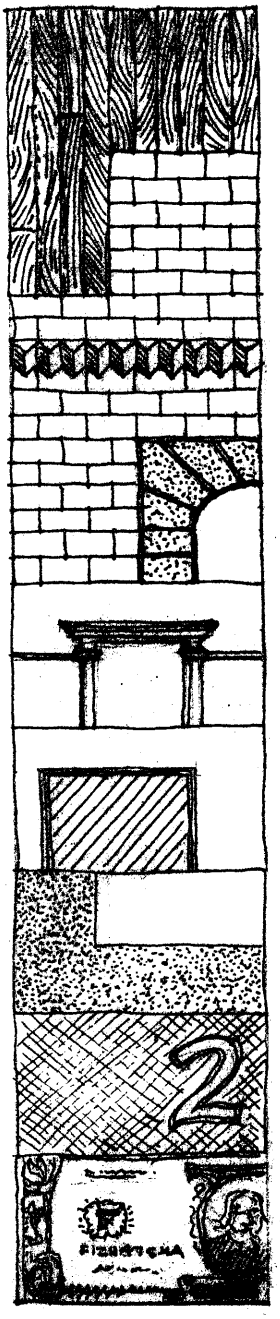
4,5 Grating allows direct awareness of space below; metal decking inset with glass rounds gives only clues through sound and light. Both may be additions to more permanent places.

6 Wooden floor has special sound and resilience; may be attachable or finishable. **7** Carpet is soft, sound-absorbing, noticeably different from other finishes in sensuous quality. Like others, it may receive color. **8,9,10** Change in zone is seen through change in material. Interspersed changes of texture, color, etc. signal change in zone ahead.

11,12 Patterns embedded in additive grid may respond to shape of surroundings or deliberately create zones of their own. Signs and symbols subdividing or replacing the grid denote special places within it.

ENCLOSURE SURFACE FINISHES

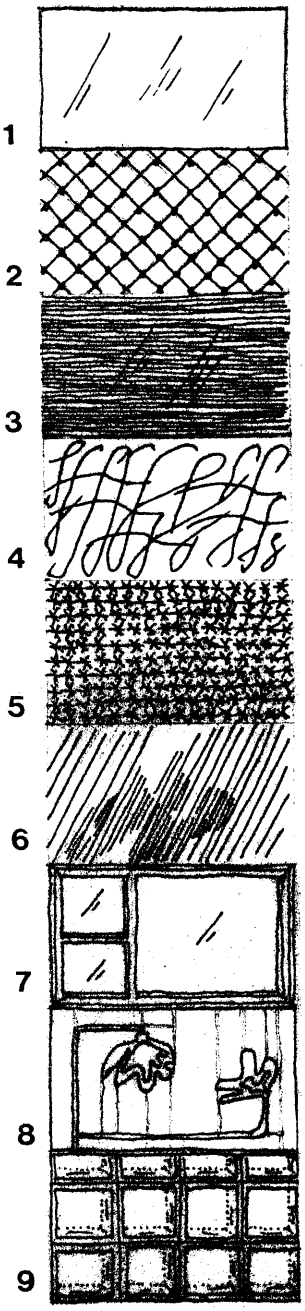
Treatment of the enclosure's surfaces, as those of the ground contributes to the sensuous qualities of the place and may denote change of zone. **1** Wood panelling creates a certain quality of sound, texture, and color within the wall surfaces.



2 Changes in zone may be called out by changes in material. **3** The material may contain within it the possibility of being patterned or subdivided and thus may indicate zones. **4,5** Openings in the wall may be signalled by changes within the surface materials or by the addition of molding and trim. **6** Moldings and other additions to the surface may likewise frame or create special panels, or just subdivide the surface. **7** Changes in texture or color in an opaque wall may call attention to a particular place. **8,9** The surface may also contain signs and symbols that influence one's use of the place or what give directions. These may occur singly or in layers with other edge types and finishes, and influence the visual imagery.

TRANSLUCENCIES AND TRANSPARENCIES

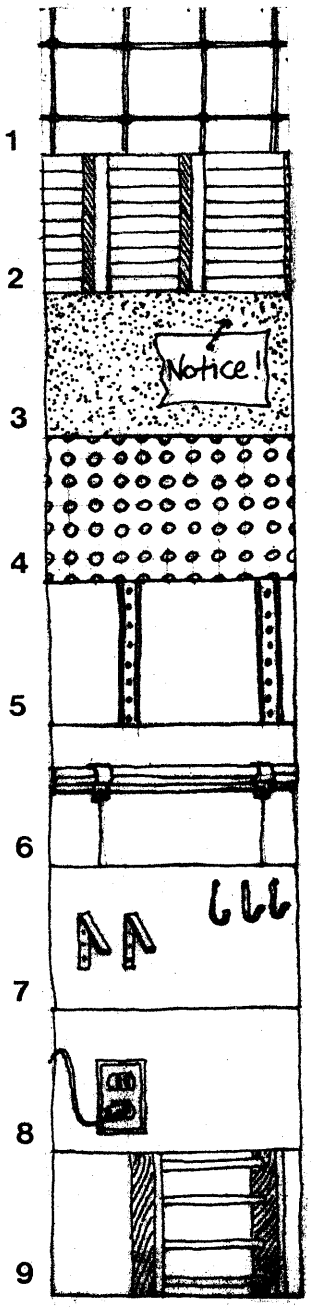
The quality of translucency or transparency of the usually glass medium element between zones directly influences the inter-communication.



1 Clear, transparent glass may allow direct, full communication through it. 2 Wired glass introduces another layer within it which may slightly limit capacity to see through it. 3 Tinted or lightly textured glass affects the quality of light and thus vision through it. 4,5 Frosted or swirled glass may allow awareness of lights, colors, outlines of furnishing and movements, or may be dense, only slightly translucent and may disallow vision. 6 Reflective glass or mirrors create illusions but are opaque to spaces beyond. 7,8 Subdivisions by frames or mullions may signal changes inside or may influence how and where one sees through; they provide a frame for changes in types of glass, even for the embedding of special stained glass elements. 9 Glass block may be its apparent thickness limit vision similarly to frosted glass.

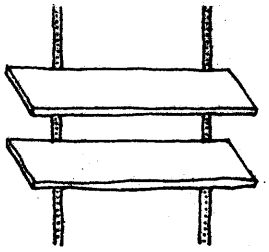
ATTACHABILITY AND USE-ABILITY OF SURFACES

The finishes of surfaces, particularly those of the enclosure, and the condition of enclosure itself may determine the ability to attach onto and use it. **1** A pipe grid, either as the structure or as an overlay to other surfaces, offers the possibility of attachment. **2** Even a regular stud wall, if the final panelling is not installed, may act as a frame to receive special wall surfaces. **3,4** The surface material itself (homosote for example) may allow easy attachment. similarly pegboard both suggests and offers the means for attachment. They may also allow painting and repainting. **5,6** Moldings and special strips for receiving brackets may allow pieces to be attached anywhere along their length. **7,8** Brackets, hooks, and electrical outlets mark special locations where things can be attached. **9** Ladders, in addition to acting like brackets or studs to receive other surfaces and objects, may indicate the possibility of climbing over the surface and having access to higher locations.



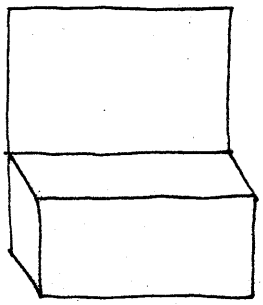
INTO AND ON

As with the elements that allow attachment onto surfaces, those pieces of the environment that allow things to be put into or on them may be part of the enclosure itself (in this case), or may be layered with other elements on top or in front of it. Instead of dealing only with the surfaces, this category is characterized as being three-dimensional and may return to forming part of the enclosure.



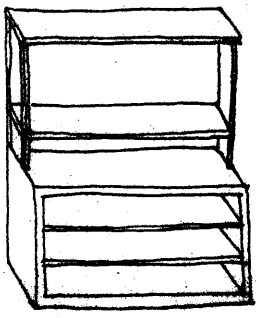
1

1 Shelves attached to brackets mounted on the wall surface make up a multi-component unit that allows things to be put into or on it. Compared with the following examples, it may allow the greatest ease in rearranging, though within a small range of choices.



2

2 Shelves or counters may be formed by bends in the enclosure itself; these may be used as they are or receive additional pieces as above.



3

3 A free-standing piece of furniture which allows things to be put into and on, and perhaps onto, it, may form part of the edge of a space or use-zone. Its manipulability is allowed at large and small scales, by moving it or by changing its pieces.

Section 2:

THE RELATIONSHIPS SET

INTRODUCTION

RELATIONSHIPS BETWEEN PRIVATE WORKING SPACES AND THE PUBLIC REALM:

A. PRIVATE WORKSHOP SPACES : THE PUBLIC REALM

B. PRIVATE STUDY SPACES : THE PUBLIC REALM

RELATIONSHIPS BETWEEN PRIVATE MEETING SPACES AND THE PUBLIC REALM

CLASSIFICATION OF THOSE IN THE PUBLIC REALM

ILLUSTRATION OF EXAMPLES

Introduction

The relationships studied. The following section categorizes interpersonal relationships between the public or communal realm and three inter-related types of private activity spaces found in educational settings -- private meeting spaces and private working spaces of two sorts. For purposes of this study, private working spaces are taken to include both spaces where active physical production of some kind takes place, and spaces where modes of looking, listening, reading, studying, or thinking prevail. Private meeting spaces are simply understood as locations where verbal exchange and interaction among people are encouraged. These distinctions are made here because they separate educational endeavors that characterize the arts (at least) into activities which may have varying requirements for control over access and awareness of those in the public realm, and therefore varying ability to inform that public realm.

Distinction between "private" and "public". The distinctions between what is public and what is private are relative and there are many gradations within the range from most public to most private. Within an institutional setting, the degrees and types of privacies may lie somewhere between those required for urban public places, and those required for personal housing.

For purposes of this study, an activity in an institutional setting is considered most private when it cannot tolerate any intrusion or random communication from outside the bounds of the space it occupies. The controls it requires may be social (limiting exposure of the activity to certain people); they may be environmental (control of light, sound, etc.); they may be needed for reasons of security; or they may be needed to assure a certain atmosphere that encourages, for instance, contemplation, concentration, or introspection. In any case, unwanted, public scrutiny or extraneous access is considered a threat to the integrity of these most private spaces.

The most public activities, on the other hand, invite full awareness and perhaps even participation of those in the public realm. Most of the activities described in this study belong somewhere between these two extremes.

The dilemma of public scrutiny of private educational activities. Traditionally, working and teaching spaces have been shielded from public access or knowledge in order to insure the protection required by many learning processes. Even when the presence of onlookers does not physically distract one's attention or interfere with one's activities, it may nevertheless inhibit experience-based learning. The freedom to work things out and to make mistakes, and the needs for concentration of attention are treated with the utmost respect. The public is allowed knowledge of the activities only upon invitation and then usually only the carefully prepared products of the work are presented. The exhibit and performance spaces are often then given the most careful and sumptuous treatment, while the messy working spaces, the "dirt studios," are totally closed and guarded.[15]

At M.I.T. and at other schools, the argument is being made that the workshop is the most critical setting for education in the arts (as maybe also in the scientific and technological disciplines). The process of creation becomes more important than presentation of the product. It follows that this emphasis on learning and working processes should be reflected in what is revealed to the public. The audience, perhaps in the form of the individual onlooker, should then see or hear work in progress as part of its everyday experience, in addition to its occasional group attendance

of more formal celebrations. The public environment would become alive with the workings of the place and would carry the messages and images of the education happening there.

The conflicts and problems are obvious. The ideal educational setting should cherish and protect the most private creative processes of its inhabitants, and should simultaneously and vigorously attend to the public, communal spaces informed by those private processes.

Intent and content of this section. Identifying the ability of an activity to tolerate scrutiny or apprehension of those not directly engaged in it is crucial in determining the activity's capacity to inform the public realm without being jeopardized. The purpose of this section is to set up a framework for interpersonal relationship types and roles so that those tolerances and capacities can be illustrated and tested.

The following outlines describe the three types of private activities mentioned and their relationships to the public realm: workshop-production spaces; contemplative or study spaces; and meetings spaces. The structure of their relationships to the public are further characterized by three degrees of formality and informality. These three

relationship structures -- casual access to random or organized information about private activites; assumption of particular roles in predetermined social (and sometimes physical) contexts; and participation in the activities themselves -- condition the degree of control required and the ability of a person in either realm to comprehend the realtionships. Definition of these structures is appropriately adjusted for each of the activity types.

Just as the private realm may be characterized as having more or less capacity to be exposed to and interact with the public realm, so the public realm should be correspondingly differentiated and categorized. In general, the public realm includes the paths of distribution or circulation which surround and service the private spaces, and special communal gathering places. Location and use of these public spaces may assign them casually or formally to certain groups of users. Those in the public realm are then, for the purposes of this study, classified as being: general, undifferentiated public; limited public; and insiders. The degree of publicness of the paths and communal spaces, characterized as belonging chiefly to one of these groups, helps determine the control requirements of private activity spaces relative to communal zones.

Illustrations of relationships. Finally, in order to illustrate and to criticize the categories of relationships, a set of activity spaces selected from the site chosen for the design section of this study and its surroundings on the M.I.T. main campus, will be depicted. Since the previous section of this study attempted to demonstrate some of the gradations of publicness and privacy allowed by the physical form of the environment, the illustrations will make some correlation between these and the relationships context. Appropriateness of the configurations and their overall effect on the public environment will be discussed later alongside an examination of the usefulness of these sets in a design process.

Private working spaces : Public realm

Two modes of working. In an academic setting, "working" may describe a range of processes from daydreaming, to rigorous analysis, to hands-on physical production. For the purposes of this study, two modes of working are assumed to characterize education in the arts. One is the studio experience where creative production of some kind takes place. The other involves sensory experience of creative works, either those produced through the educational programs or comparative works introduced from other contexts.

The split between these two modes of working is traditionally that between the practical or creative endeavor, and theoretical or historical study. Whatever the curricular structure that combines or separates these two modes, they could be recognized as co-equal and mutually supportive parts of the educational experience of the arts. The theoretical or historical study provides a context and a measure for creative work; practical processes filter back into one's

appreciation of and learning from other work. And analytical skills learned from studying other work may influence the way one criticizes one's own.

Both of these modes of working have some capacity to inform the public realm, either directly or indirectly. Physical production is clearly more visible to the public than thought, but even personal immersion in a sensory experience may be witnessed by the public if the object of contemplation is visible or audible. The equipment and materials for working may be all that is seen, or a certain stance or mode of working may be recognizable as evidence of creative activity.

Office space. These two categories of working processes particularly characterize the student experience of the education, though faculty and staff may also be engaged in creative activities. Preparation of classes, consultation and criticism, administration, and technical or support functions generally occur in another type of working space -- private offices or their equivalents. Offices here are considered to serve information, gatekeeping, or teaching functions, often in connection with other working and teaching spaces, and are therefore treated within the categories of private working spaces (or in some cases, private meeting spaces). The illustrations that follow will discuss in more detail

some of the relationships issues concerning office spaces.

Individual and collective space. Personal controls. Private working spaces are understood here to include individual and collective spaces, as long as each occupant may claim and control a piece of the environment -- permanently or temporarily -- as a station at which to work. The control requirements of each space will vary according to the activity housed, as will the specifications for the spaces. Collective work spaces may double as private meeting spaces abd may thus tolerate different kinds of sensory and physical access at different times. In general, however, it is assumed that the control requirements for a collective work space are essentially of the same type (and perhaps degree) as those for an individual work station for the same activity.

Both individual and group working spaces require a certain amount of privacy, conditioned by incremental control over exposure to public scrutiny. Personal manipulation of the immediate work surroundings may temper or modulate exposure allowed by the collective environment: erection of barriers, strategically choosing a spot to work, placing oneself in the space so as to control the view are all means of expressing personal preference for working conditions above and beyond those set by the physical edges of the space.[16]

A. Workshop spaces

The act of production involves the physical process of making or doing something. The "product" of this working, in an educational context, may not be a physical object, but rather an experience or learning process. Even the most elementary laboratory experiment whose purpose is to demonstrate some well-proven property may be included in this category, along with the making of music, of poetry, of sculpture, of a theatrical backdrop, of an architectural design, and so on.

The educational justification for providing production or workshop facilities as teaching spaces lies in the belief that the act of doing or making something is in itself a meaningful educational experience. The physics experiment may, in addition to demonstrating a principle firsthand, also develop a student's skills and attitudes toward experimentation. The laboratory often runs parallel to a series of lectures and recitation sections and thereby has a rela-

tively independent life, however tied to the subjects discussed in the group meetings.

For many of the arts, the primary learning mechanism is the experience of doing. This activity is central to the teaching, not simply an adjunct. The design studio may have additional group meetings and lectures, but usually in the context of -- or to make a context for -- the creative work. The lectures are an important adjunct to the studio work rather than the other way around as in the normal lecture-lab subject. Needless to say, the curricular variants of this are innumerable. The importance of the differentiation is that these two types have different control requirements and potentially different relationships with the public realm. Creative work, while it produces a product which can usually be seen or heard by the public, requires a kind of concentration and individual expression that must be protected if it is to flourish.

CATEGORIZATION OF RELATIONSHIPS

A. INFORMAL RELATIONSHIPS. General awareness of the activities is allowed in order that even the most casual passer-by may become easily informed of what is happening inside, often through sensory or physical access to the activity spaces themselves. The ways in which the activities are revealed determine their capacity to enliven and inform the public realm, both individually as interesting things to be discovered in the environment, and collectively in the creating of identifiable community realms.

1. Most active in terms of public involvement. The attitude is to show the workings, the processes of the arts and other activities (Axioms report, 1). The activities are in full view and speak for themselves. There is little or no control over what the public becomes aware of; the public becomes randomly informed.

2. Active in terms of public involvement. The public is exposed to some activity, but either not fully (access may be modulated by partial physical or

sensory constraint), or not "exactly" (a substitute or representative for the activity or persons may be perceived instead. There is minimal control, but access is definitely monitored.

3. Least active in terms of public involvement. The public image of the activity is carefully thought out and arranged. There may be a formal vestibule arrangement or a less formal intermediary zone between the most public and private spaces. This zone protects the inside activities by providing a buffered entrance area, or informs the public in a neutral and perhaps relatively static manner as an introduction to the activity itself. In addition to this presentation of what may be happening farther inside, the public may have some limited access to the inner workings, modulated by strong social constraint, or opportunity only for sensory access. Controlled access.

4. Static in terms of public involvement. The public is exposed only to clues, or signs, that indicate however accurately the nature of the activity. These signs may also indicate which private spaces belong together, and thus provide an image of the program spaces. This type of information-carrying may coexist with the more active types. Carefully controlled access.

B. FORMAL RELATIONSHIPS. Access of the public is encouraged in order that it assumes the role of spectator or audience. The relationship may be socially or physically/spatially understood, but it is generally confined to the most public zone of the private realm and does not usually allow penetration of production or technical spaces except as they are part of what is being shown. The structure of the activity setting may also enforce the feeling of community among the spectators. Entering into this relationship usually requires a conscious decision on the part of the public; timing and management become critical elements for the activity.

1. Minimally controlled. Access is generally allowed. The activity setting may be structured and arranged in such a way as to pre-determine the nature of public involvement. Yet the relationship between spectators and "performance" may be casual either in the sense that constant formal attention or position is not necessary on the part of the public, or in the sense that the activity itself does not need to be experienced as a totally finished piece of work.

2. Highly controlled. Access is allowed at specific times and for specific occasions. Physical design may put emphasis on arrival and entrance, and on the

relationships between spectator and performers or work. Other social or physical controls may be operating to determine the nature and quality of the relationship. In general, however, one is able to anticipate or predict the relationship.

C. HIGHLY STRUCTURED RELATIONSHIPS. Access is allowed in order that the public participate in the activities. This relationship is the most active of any in the sense that it allows direct involvement with the work. It generally occurs within the most private activity spaces where timing and management can be most effectively controlled. Compared with the first two types, this type is most appropriate for insiders or even limited public, whereas the others are based on involvement of a general public; the relationship is not exclusive of the participation of the general public but timing and management may become controlling factors. (See the classification of those in the public realm.)

B. Study spaces

The second category of private working activities includes looking, listening, studying, reading, and thinking. These are, by nature, more passive, contemplative, and even introspective than their active production counterparts. Though this type of activity is common to most fields of study, it has particular value in arts education, where the sensory experience itself is a key part of the learning -- and enjoyment -- process. In the arts, the theoretical and historical studies deal not with intellectual abstractions so much as with objects or performances that are meant to be understood through experiencing them. Also, the test of creative work is often to expose it to others' scrutiny and criticism.

The learning component of experiencing creative work should be separated in this study from the usual forms of public exposure to the arts through exhibits and performances. Galleries and "theaters" are illustrated here, but are of

interest because they teaching facilities first and places for public show secondarily. Thus this study does not concern itself with the staged publicizing of the products of creative activity except as it occurs in conjunction with working processes or within working spaces.

At first glance, this category of working activity seems both more public and more private than production activities. Because it deals with personal reflection and observation, it may seem to tolerate less public disturbance; yet because it deals also with products or objects which may act as intermediary foci of attention, it has potential to become very public. Because the activity does not have so active a public character, it seems less able directly to enliven the public realm than workshop activities. Building something offers different, perhaps greater opportunities for scrutiny from and enlivenment of the public realm than, for instance, seeing someone contemplate a painting. Yet the presence of the painting may reflect an inner energy in the place.

The control requirements for contemplative activities are especially dependent on the medium of the work, on its relative size and location, and on other specifics of the activity itself. Looking at a film, or a photograph, or a sculpture, or a wall-size painting offers different experi-

ences and requires different environmental conditions. Because of its wide-ranging potential for exposure, this category of working activity provides an interesting set of cases to analyze and an important reference for the design of production and meeting spaces with which it is often associated and even coincident.

CATEGORIZATION OF RELATIONSHIPS

A. INFORMAL RELATIONSHIPS. (Same as in previous section) General awareness of the activities is allowed so that even a casual passerby may have the opportunity to become easily informed of what is happening, often through physical or sensory access to the activity spaces themselves. This relationship structure characterizes the experience of the public realm. The ways in which the activities are revealed determine their capacity to enliven and inform the public realm, both individually and collectively.

1. Most active in terms of public involvement. The public has the opportunity to experience the object of attention as well as to communicate with those involved in observing it. The relationship is an over-the-shoulder one. Those in the public realm share a similar, though perhaps slightly removed or more casual relationship to the object of attention, compared with those directly engaged in studying it. Because of the public presence of the work, the activity has less chance of being jeopardized that those in the most active category of the production

activities group. In this case, the informal relationship is very close to participation: the main difference (see the second relationships structure of this set) is that true participation requires a commitment that an informal relationship does not. Little or no control.

2. Active in terms of public involvement. Those in the public realm would have knowledge of the object of attention but may be forced, by physical or social constraint, to perceive it incompletely or with some degree of remove. Communication with those actually doing the work may be possible; the relationship may retain some of the over-the-shoulder quality of the most active one just described. The most compelling relationship in this case, may then still be with the object of attention rather than with those seriously involved in studying it. Minimal control.

3. Least active in terms of public involvement. Those in the public realm may become aware of the activity by recognizing its usual form or manifestation, by seeing its trappings or equipment, or even by becoming aware of the activity (though not being able to communicate directly with it) in a controlled situation. Controlled access.

4. Static in terms of public involvement. Those in the public realm may reach an awareness of the presence of an activity by perceiving signs or evidences of the activity or of the spaces which it occupies. This type of information-carrying may coexist with any other type of relationship. Strictly controlled.

B. FORMAL RELATIONSHIPS. Access of the public is allowed so that it may assume the role of spectator or audience. In general, one must make a decision to enter this type of relationship, though a more casual encounter may be possible. Even then, the social or physical setting may determine one's role relative to the work being experienced or to others in the audience group. Because of the nature of the activity being described in this set -- looking, listening, studying, and so on -- participatory relationships and formal relationships, which both demand a spectator role, are combined in the same group.

1. Casual, minimally controlled. Because the social, physical, environmental, or temporal controls on the activity might not be stringent, a more casual relationship becomes possible. Access might be generally allowed, though the setting would determine the

formality of the relationships structure.

2. Highly controlled. The controls on access may be physical, social, sensory, or temporal, but they limit the amount and type of access to the activity. The control requirements of the activity (light, sound, whatever) may require this degree of formality, or the work itself may need to be seen under special circumstances, often as a sequence or a set piece. (Different media may lend themselves to one or another of these formal relationships; a film or a piece of music may not be comprehensible unless seen and heard as a whole, whereas however deliberate the arrangement of a photography or painting exhibition, its pieces may be seen individually and lingered over according to the preference of the spectator. This difference may then be seen as the potential for exertion of one's preferences for experiencing the work versus the determination of that experience by others for whatever reason,)

Private meeting spaces : Public realm

The need for colleague space. Educational settings should be designed with as much care for places for small group interaction as for individual working stations. It is within this social interactional realm that the transmittal, exchange, and sharing of ideas and criticism take place. It could probably be argued that learning is nurtured by, if not embodied in, these processes. Careful attention must then be given to the design of a supportive and protective environment for meeting spaces.

Colleague space as it informs public space. One could assume that, in general, individual private working space deserves the greatest protection from public scrutiny. It therefore offers the least opportunity, if appropriately designed and controlled, to inform public space of its inner workings. The presence of an activity involving more than one person, however, automatically gives more life to a place and may offer greater access to the public.

Though it is important that the public realm be full of opportunities for exchange among people, only the meetings that occur in the private realm are considered here. Communication or meeting across the edges between public and private spaces, which is a general topic of discussion in this study, does not qualify for discussion here except as it establishes relationships between the public space and the "colleague space."

CATEGORIZATION OF RELATIONSHIPS.

A. INFORMAL RELATIONSHIPS. (Same as in previous sections) General awareness of the activity is allowed so that passers-by may become aware of what is happening; this relationship structure characterizes the experience of the public realm.

1. Most active in terms of public involvement. The public has full views of and may even overhear conversations. Zones that allow the most active relationships may be physically accessible to the public, but the physical or social setting may encourage more private interactions among people. These areas may also act as vestibules or buffers for other activity zones. Little or no control.

2. Active in terms of public involvement. The public may have full awareness of the existence of the meeting space but distance or barriers may limit the physical or sensory access. They may provide settings which one could at least imagine oneself into, if not go into as the most active relationship allows. Minimal control.

3. Least active in terms of public involvement. Those in the public realm may become aware of the existence of a setting for meeting, but may be allowed that awareness at certain times or under special conditions. When the meetings are in progress, this type of least active relationship may be reduced to a static one by the exertion of controls over access. The relationship may be allowed or discouraged according to preference of those engaged in the activity. Controlled access.

4. Static in terms of public involvement. The public may understand existence of the activity only by signs or evidences of its existence. Strictly controlled access.

B. FORMAL RELATIONSHIPS. The formal relationship may allow both formal and casual exchange, but within a self-conscious context where roles are defined or assumed. This may require that the physical setting has controls on it to encourage and support those roles and that there are clues about when and how one is to enter those relationships.

1. Requiring the least energy, casual, minimally

controlled. These meeting spaces are fairly unconstrained and may allow easy access from the public path. They may be arranged so that one's physical position reflects one's role, though the social setting is more critical in that regard.

2. Having somewhat more constraint and control. The place where exchange takes place may belong to an assigned domain or may be otherwise socially constrained. It thus may have a more controlled physical setting.

3. Constrained, controlled. The private exchange location may allow very limited sensory access or awareness of its existence, but one could not enter the relationship of meeting until one were invited.

4. Highly constrained and controlled. Shared private meeting spaces may be entirely shielded from public access except under special circumstances. This relationship may typify personal meeting places in most private zones.

C. PARTICIPATION. This category overlaps both the first and second parts of this set. Participation in meetings for the general public may require little or no structuring of the roles and relationships, whereas participation by insiders or limited public may become conditioned by special controls (timing and management, for instance). Depending on the formality of the physical setting, the opposite may be true also.

CLASSIFICATION OF THOSE IN THE PUBLIC REALM

Frames of reference. The differentiation of those in the public realm into groups of general public, limited public, and insiders, is important in determining the frame of reference to which the controls over access to the private activities must respond. A relatively private activity occuring along an equally private path does not in general need the same stringency of control that the same activity would need along a very public path. In both the illustrations of the Relationships Set which follow and the design, I make the argument that matching frames of reference of those in the public realm with the tolerances of exposure of private activities, might lead to a reduction in the barriers between realms and would therefore allow a more active, communicative relationship between them. Of course, complete segregation of like activities and like paths could lead to a tyrannical solution, unless the potential of private activities to tolerate public exposure is carefully exploited wherever their location.

The identification of any group or individual as belonging to general or limited publics or to insiders is entirely dependent on the social context, and is still not

a clear-cut subdivision. In the context of this study, those who are considered insiders are generally those belonging in some way to the program or sub-program in question, that is, those who have the same basic frame of reference as those engaged in the activity. Limited public refers to those who have some relation to other arts programs or related fields; they may have a similar frame of reference to those in the private realm, and may often be recognized as persons having at least an indirect association with the activity or field. The general public is characterized by the M.I.T. community of faculty, staff, and students, and also visitors who happen through the public paths of the place.

The basic criterion for calling any person or group insiders, limited public, or general public must always return to the relationship of the onlooker to those engaged in the activities, and the degree of constraint or "threat" that is felt on either side of the public-private edge. Sometimes, those who belong to the general public group in terms of social role may, for instance, be considered limited public based on where they are rather than who they are. Also, particularly with formal relationships, those in the public realm may have a basis for communality and may as a group influence the quality of relationship with the activities they are witnessing.

What matters in the matching of frames of reference is not so much who is doing the looking at any time, but rather a general characterization of the path of public spaces adjoining the activities as accessible to or primarily used by any one of these groups. To refer to the beginning of the study, the network of streets that allows differentiation of routes by accessibility or by identification with a group of users, makes it easier for activities to relate directly to those routes than to a single street, and allows them to ally themselves with a path of a similar degree of privacy. Appendix C includes a further discussion of design parameters for an overlook condition which considers frames of reference, and also illustrates a role-playing means to test those relationships.

ILLUSTRATION OF THE RELATIONSHIPS SETS

The following set of isometric drawings was made of various activity spaces taken from the design site and the surrounding area within M.I.T.'s main buildings. Figure 7 in the next section shows the location of the design site. These examples were chosen to illustrate as closely as possible the previously described relationships between the public realm and three types of activity spaces; only matches have been given here and not all relationships types have been illustrated. Examples of mis-matches (active relationships, for example, which do not respect the qualities and purposes of one of the realms) are given and discussed in Appendix D.

The examples are also referred to the physical means for achieving the relationships, using the edge categories developed in Section 1. Both the physical and social contexts are briefly described to qualify the matches with the relationships types. These illustrations and their descriptions could presumably be useful in criticizing and revising the categorization of relationships; a wider variety, taken from other contexts would probably be more revealing, though.[17]

The drawings and their descriptions have been keyed:

Working -- production

Informal relationship

Most active

General public; secondary corridor

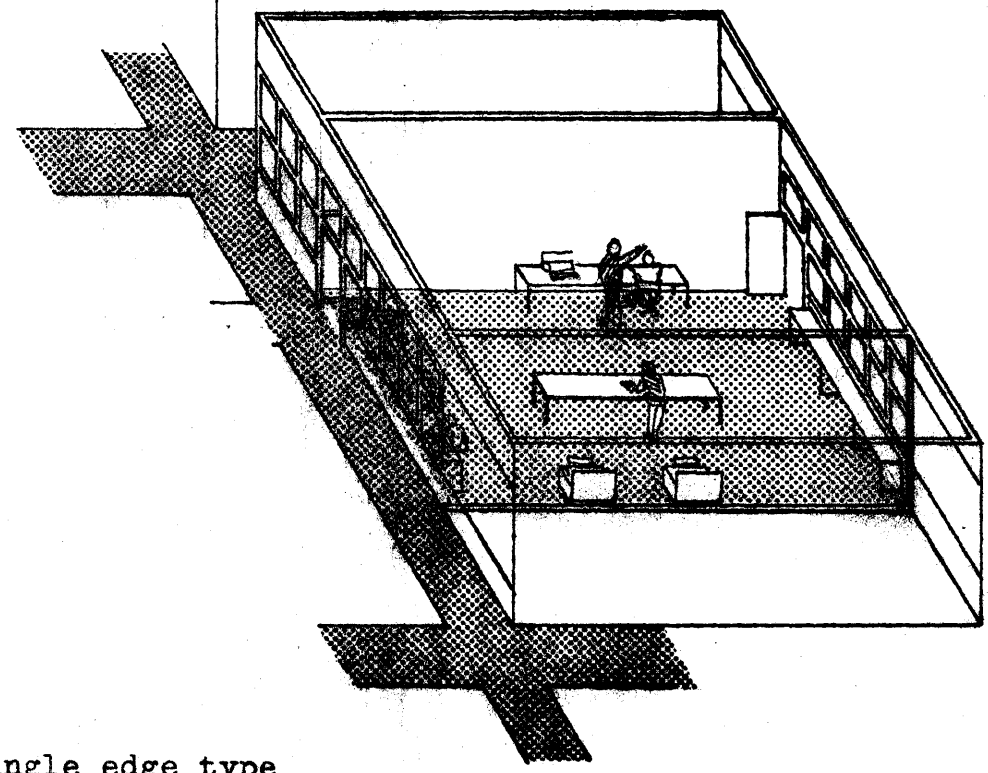
Existing: a computer keypunch facility

The glass-walled corridor through the middle of Building 10 allows immediate full views of keypunch facilities to either side. The whole core is transparent, so one not only sees into the room but through it, and even casual passers-by have easy views of students working at keypunch and print-out machines. Some of the machines have been arranged so that they touch the front walls. The narrowness and relative darkness of the corridor make one focus one's attention in and over the work. Students are continually looking up, particularly if anyone stops to look in. Students who use the machines placed farther back in the room seem to be less distracted than those at the front.

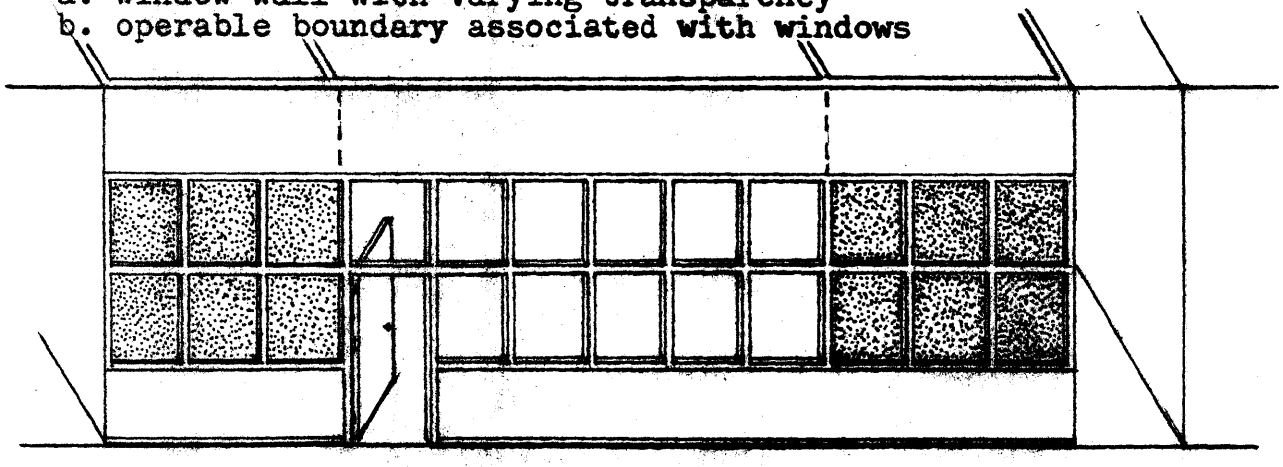
The placement of the machines directly under the noses of passers-by should probably be considered a conflict between the path and the activity that is jeopardizing to the work. But, in general, such free access to the room may not be considered out of line for two reasons. First the facilities are generally accessible, almost public, though use is meant to be restricted to those enrolled in certain

heavily populated subjects. No doubt a great many students at the Institute have at one time used the room, and probably associate with it. (There may even be a sort of ritualistic association with it as an introduction to the computer field; students using it are meant to be recognized just like those who carry around polyurethane beams and columns that signal them as enrolled in elementary Structures.) Second, the activity of keypunching is fairly mechanical and may not require much concentration, though some students seem to be doing other work there as well.

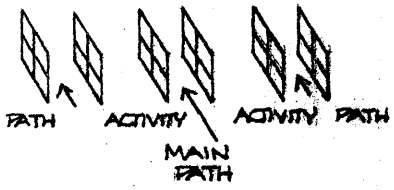
1. Activity space



2. Single edge type
   a. window wall with varying transparency
   b. operable boundary associated with windows



3. Multiple layer edge type:
   triple layer window walls to both sides of main path



Working -- production

Informal relationship

Least active and static

General public; secondary corridor

Existing: the Metallurgy Department's welding laboratory

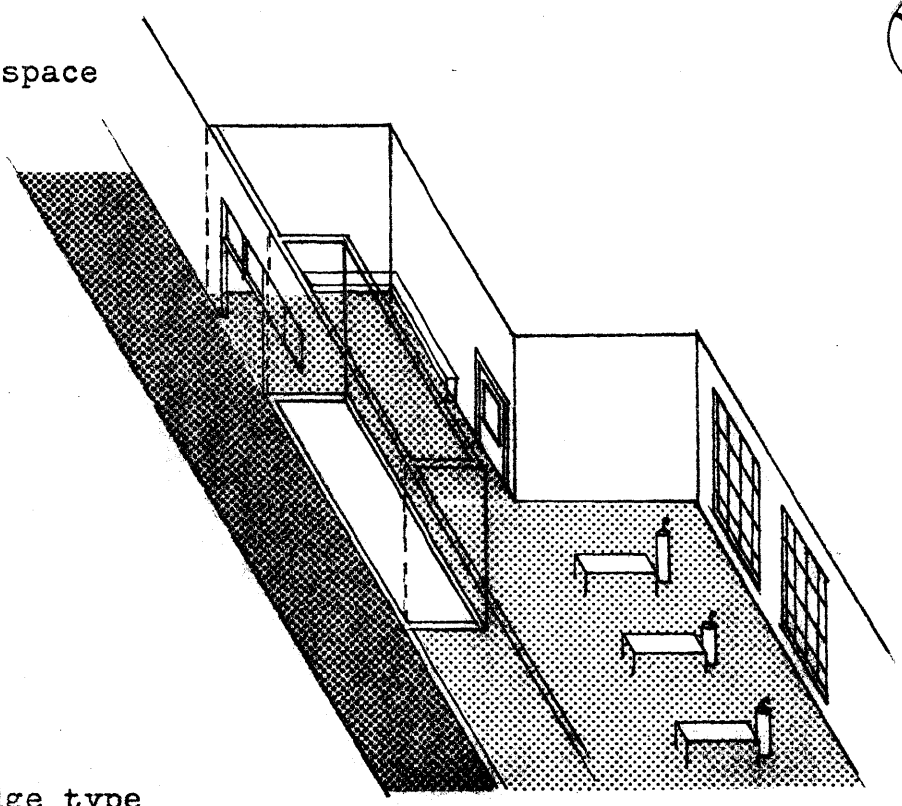
The welding lab is a private collective working space which invites the public's awareness of its existence through an entrance vestibule full of displays. Because of its dangerous processes and the need to secure its equipment, the workshop itself is necessarily removed from the public path, but its vestibule encourages one's apprehension of the activity. Unlike the exhibition galleries that have been designed for the arts programs here, this collection of objects is more of a set of signs or evidences of the activity than works to be studied.

The physical edge between the path and the activity includes several edge types. The multiple layer entrance zone begins with a set of frosted glass doors which are always wide open when the lab is occupied; these allow full view of the exhibition area arrayed along an opaque wall straight ahead. The exhibition zone extends beyond one's immediate range of vision and invites one in. The next layer is an implied boundary, arranged so that one must turn ninety degrees to face it frontally. This allows full view

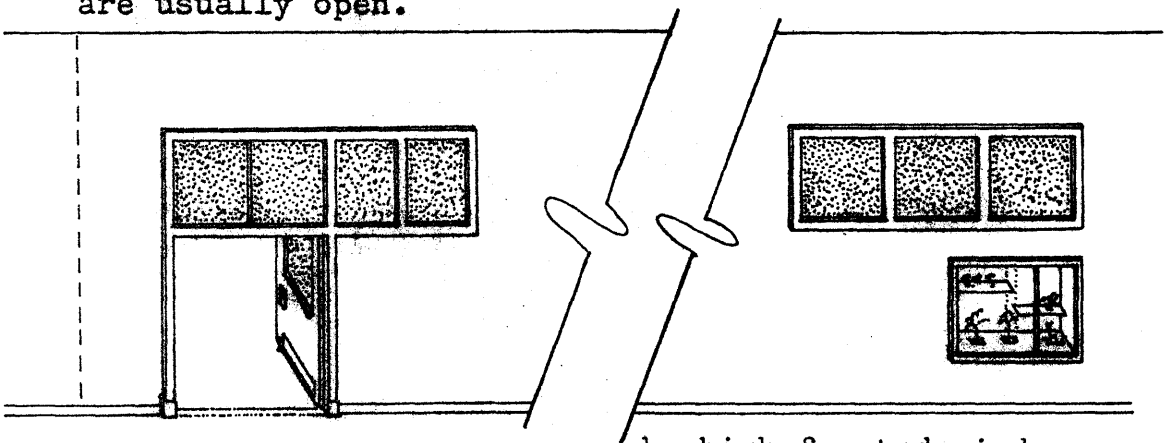
of the welding lab's workspace beyond, but exerts some social constraint on entry.

The rest of the lab's wall along the corridor includes blank opaque walls, high frosted windows, and display cases. These display cases carry additional examples of the work done in the lab and give evidence of the lab's existence. They are thus considered static relationships between the workshop and the public realm.

1. Activity space

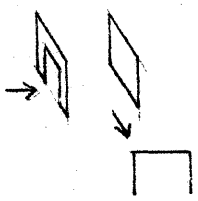


2. Single edge type
   a. operable boundary associated with windows (all obscured) OB functions as implied boundary, since the double doors are usually open.



   b. high frosted windows; display cases; mostly blank opaque walls.

3. Multiple layer edge type: operable boundary followed by opaque wall; change in direction (non-alignment) leads to implied boundary



Working -- production

Formal relationship

Minimally and highly controlled

General public; limited public path

Design: Theater for the Environmental Arts

The Theater for the Environmental Arts is generally characterized as a giant workshop but because of its size, location, the potential for overlooking it, and the nature of its activities, it may allow formal relationships with on-going (or specially staged) shows or performances. These performances are considered in the workshop category rather than in studying because of the nature of the space and assumptions about how it would be used. By being almost completely flexible, the space may allow many kinds of relationships. The minimally controlled condition would allow people to drift into the space along its upper bridges and overlook the action. A more formal or ceremonial experience of entering and even participating in some of the activities below might put the relationship into a more formal category.

(For the sake of explanation. No illustration here, Refer to the design drawings in the third section.)

Working -- production

Highly structured relationship

Limited public or insiders; most private path

Design: expandable project space

The project space at one end of the private path through the Photography spaces was designed to allow special projects to have a "home" and to encourage interdisciplinary cooperation with adjoining Visual Design studios. Its physical definition is characterized not so much by the treatment of the edges as by the change in height and light quality of the cover in that place. An operable wall allows full or partial connection with a smaller adjacent studio which also connects to the Visual Design spaces.

The edges of the project space are considered variable by moving around partial height barriers and furnishings. The location at the end of the most private path and removed from view of the general public helps protect it while allowing active relationships with those already belonging to the same frame of reference as those working there.

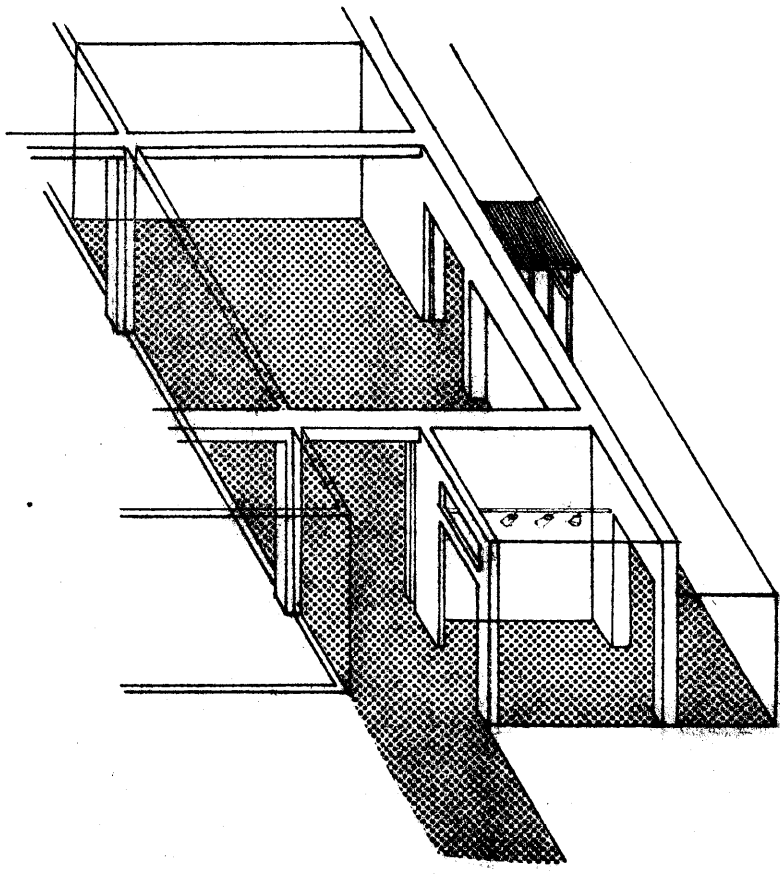
(Given here to explain the type of relationship. No illustration is shown here; refer instead to the design scheme in the third section of this study.)

Working -- studying/looking
Informal relationship
Most active
General public; secondary corridor
Design -- the photography gallery

The photography gallery was designed to serve a dual purpose: first, as an informal teaching facility where students could individually and collectively become acquainted with others' work in the medium through rotating shows, and second, as a public gallery that would serve as the most visible evidence of the photography program. The gallery might also be shared by other programs such as Visible Language Workshop or Visual Design which might either mount their own shows or put together cooperative exhibitions.

The corridor through Building 12 goes right through the space, making it part of the immediate visual field of the general public. A smaller corridor passes around the gallery so that the gallery could be closed off for classes, for all-night security, or for mounting and changing exhibits. Then its relationship with the public realm would be considered static. The place where the corridor bends around before it goes under the lower-roofed section of the Building has been made into a special exhibition place also, and has an informal relationship with the public. See also Formal relationships.

1. Activity spaces



2. Single edge types

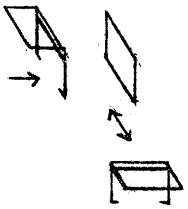
Main gallery: a. operable wall (sliding)

b. opaque wall, operable wall (lift up)

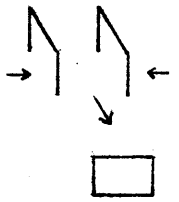
Corridor gallery: implied boundaries, opaque walls

3. Multiple layer edge types

Main gallery:



Corridor gallery:



Working -- studying/looking

Informal relationship

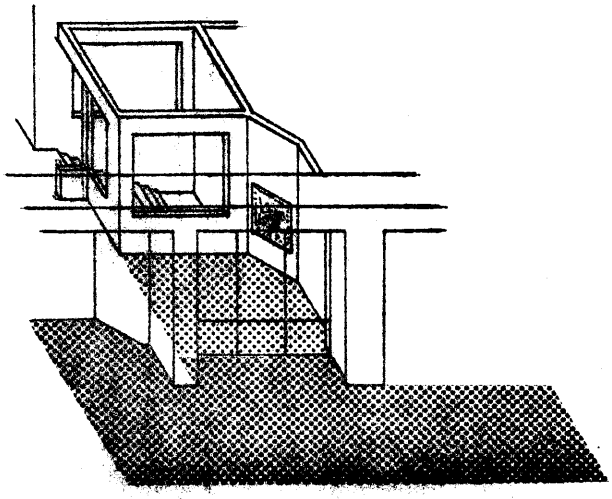
Active

General public; main corridor

Design: Television viewing area

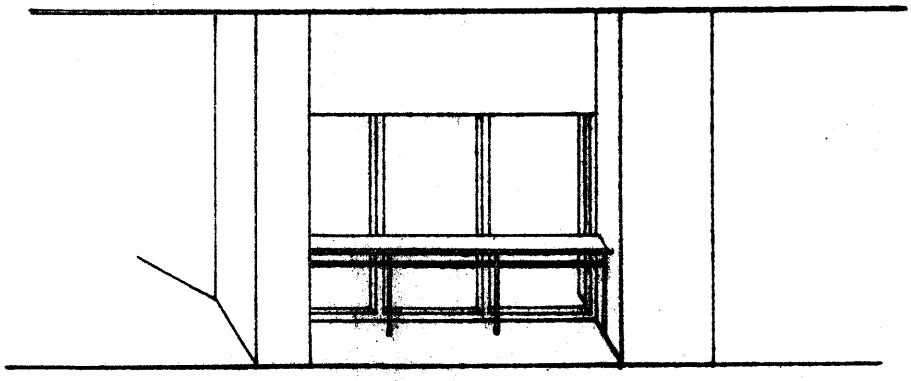
A large television screen capable of showing video tapes made through the film program, closed circuit television, and commercial television, is the focus of attention for a small watching and listening area near the entrance to the film program's spaces. A glass wall with a leaning shelf subdiving it separates this area physically, and somewhat acoustically from the main corridor, but invites full view of the screen. The depth of the columns and their enclosed duct space allow a slight bulge in the path at that point, enough to permit several people to stop and watch. As is appropriate to this category, the focus of attention is over the shoulders of the people watching and toward the screen itself. Additional views into film spaces beyond are also allowed.

1. Activity space

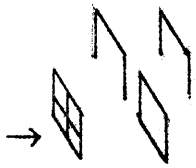


2. Single edge type

thick edge: **window wall in recessed niche, use surface**



3. Multiple layer edge type



(predominant image of first layer in thick edge is of window wall; second layer is either opaque wall (with TV) or series of implied boundaries)

Working -- studying/looking/listening

Informal relationship

Static

General public; most public path -- limited public path

Design: entrance zone to screening rooms

Because of the controls required by the showing of films (light, sound, etc), there may be little opportunity for awareness of the spaces except through static means. A visible sign on the door and special attention paid to the entrance is one means to signal its existence. Evidence of the activity may also be gained through the placement of the projection booth in this example: being able to see the equipment, associate it with a space beyond, and perhaps hear the sound of the film faintly, serve as a more lively sign of the activity beyond. (Only the relationship with the film screening room is static; the relationship with the projection booth is active.)

Working -- studying/looking

Formal relationship

Casual

General public; secondary corridor

Design -- the photography gallery

The closest example of this type of relationship would involve a transformation of the corridor gallery described as the example of most active informal relationships. In its basic form, it should remain in that category because the direction of the corridor naturally channels traffic through it. Because there is a secondary corridor which bypasses it, and because the edges at the entrances are thick (one is two feet, the other four), and controlled by operable walls, it would be feasible to add other less permanent elements to make the entrance gate-like. The gallery might then be made a place to go to, rather than allowing the passage through; passers-by would have to make a conscious decision to go into the exhibition space. And it would then assume a more formal relationship with the public. The congruence of physical form and activity type allows this jump in category based on management of the space.

The formal relationship is considered casual here because I am assuming one would still have the freedom to

pass through the space or even just to take a quick look around, but it can easily be imagined as a more controlled circumstance.

Meeting

Formal relationship

Somewhat constrained and controlled

General - limited public; most public path

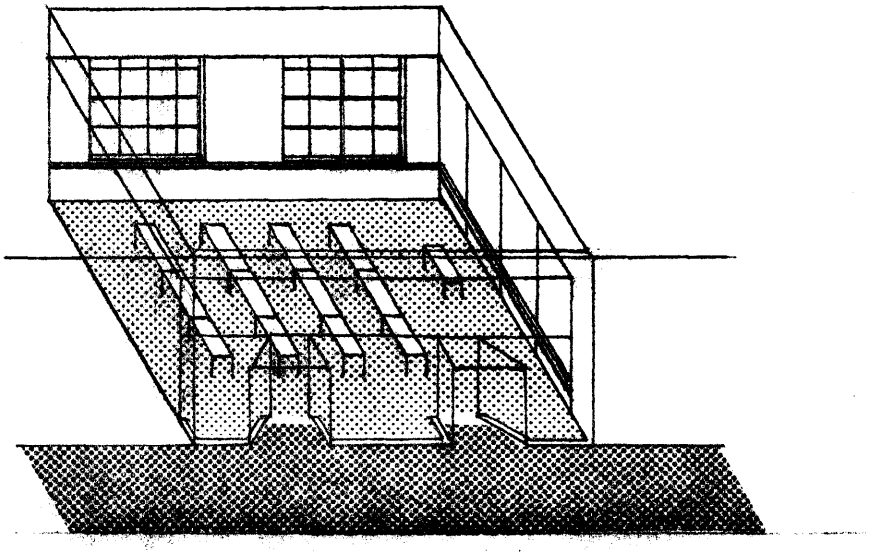
Existing: a 30-person classroom

This classroom, by its scheduling, seems to belong to a limited group of users, and is therefore considered constrained. When not in use, it is locked, so it does not allow any informal use, except perhaps snatches of conversation between classes. It is not only this social context though that puts the classroom in this category of constraint, which is one degree more controlled than most other lecture-style classrooms at M.I.T.

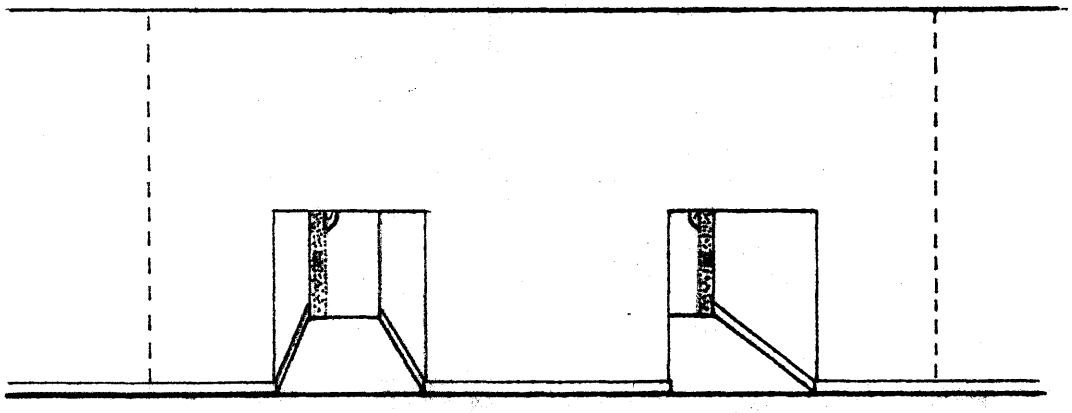
The thick single edge between the classroom and the path creates two defined entrances that are different from others along the path. The doors have eye-level peepholes in them that allow awareness of the existence of a space beyond them, but because the doors are recessed in niches, one must make a special effort to step off the path to look or go in. The placement and size of the openings assures that passers-by do not distract those meeting in the classroom. The thick edge is very protective of the activity. The fact that the niches are really large enough only to accomodate the doors, plus their immediate adjacency to the busiest path in the

Institute does not make them conducive to claim. Thus they do not enliven the public realm except as they may call attention to a structured activity space.

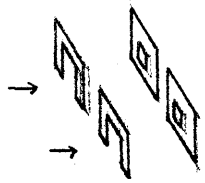
1. Activity space



2. Single edge type
opaque walls and operable boundaries set in thick edges



3. Multiple layer edge types



(double operable boundaries followed by framed views as final boundaries; activity occupies zone in between)

Section 3:

DESIGN

INTRODUCTION. THE ORIGINAL DESIGN

DESIGN CRITICISM

DISPOSITION OF SPACES: **Street and Home**

TREATMENT OF EDGES: **Street and Home**

BEGINNING TO REDESIGN

Introduction

Intent of this section. This section attempts to examine the usefulness of the analytical material developed in Sections 1 and 2 as it relates to a design process. The design that is used here was originally done as a studio project in the fall of 1973;[18] it assumes a site on the existing main campus of M.I.T. and illustrates the accomodation of a group of arts programs. The Information and Relationships Sets are used to criticize the original design, which had been influenced by their concerns only incidentally (so the design-analysis combination is not completely self-fulfilling!). Some re-programming, the beginning of re-design, and more detailed design have then been attempted on the basis of their criticism and the act of having gone through devising the analytical sections. Further, the design work started from the general notions of Home and Street, as did the analytical sections through a different means, so returning to the concerns they raise is a convenient way of rounding out this study.

The reworked design has already been previewed as it illustrated part of the Relationships Set, so it may be useful at this point to backtrack to the original problem in order to get an overview of its dimensions.

The original problem. The design was begun as an independent studio project during the fall of 1973. Originally, there were two main issues which conditioned my choice of the problem: development and illustration of building programs for arts facilities at M.I.T.; and exploration of existing sites on the M.I.T. campus, including the re-use of present space types for new functions and the capturing of space between buildings for functions whose size requirements at least could not be accomodated in M.I.T.'s existing space standards. The program and site, along with my assumptions about them, thus formed the basic realities of the project.

A third issue, which I then regarded as peripheral, involved the development of propositions about control requirements: control problems of various sorts were deliberately contrived, but their definitions and solutions were approached intuitively. One type of problem concerned environmental controls, specific qualities and conditions that the activities required (plumbing, noise control, light control, and so on). Though these remain mostly unsolved,

I did make some gestures toward their resolution since they often influence a second type of control problem which I began to address, that which is dealt with in this study. This concern for controls between the public and private realm manifests itself in the design both through the relative disposition of activities and in the treatment of the edges of activity spaces; these are reviewed and discussed in the section on design criticism which follows.

The building program. The building program I dealt with involved the facilities needed for Film, Photography, Visual Design, Environmental Art, and the Visible Language Workshop, in other words, all the production-oriented creative arts that are part of the Architecture Department and which thus have a logical programmatic and administrative basis for connection. These programs offered a variety of sizes and types of production spaces, individual and collective work and meeting spaces, and spaces which could contribute to the public life of the Institute through exhibitions and large scale public events.

At the time, the programming for their facilities needs was just being undertaken in a more thorough manner than the compilation of "wish-lists" that accompanied the Axioms report. Though some of the programs (Photography, the Visible Language Workshop) had been examined in detail,

others (Environmental Art, Film-making) were virtually untouched. These last two required, as a major facilities need, a space variously called the Theater for the Environmental Arts, a multi-media workshop, a hangar, and a black box, whose physical requirements, or even size, had never been described. Thus the design had to make different levels of proposals about accomodation of the programs. Relationships among spaces within the Photography "home" and their connection to the "street" could be more specifically illustrated as proposals, whereas even the types and number of spaces for Film had first to be demonstrated.

There were also different time frames that were involved in providing spaces for the arts; emergency needs, better accomodation of existing programs, and long-range growth had been identified as levels of need for arts facilities planning. Except for the provision of the Theater for the Environmental Arts (or whatever it is called these days), I chose to illustrate the category of provision of better accomodation for existing programs.

The site. I chose M.I.T.'s Building 12, the surrounding open space, and the north side of the main corridor in the adjacent buildings, 4 and 8, as the site for my design project. (See figure 7 which follows.) The site, by its location and present use, has a number of important

characteristics enumerated here.

- Building 12 is going to be vacated when the Chemical Engineering Department moves to its new facility presently under construction.

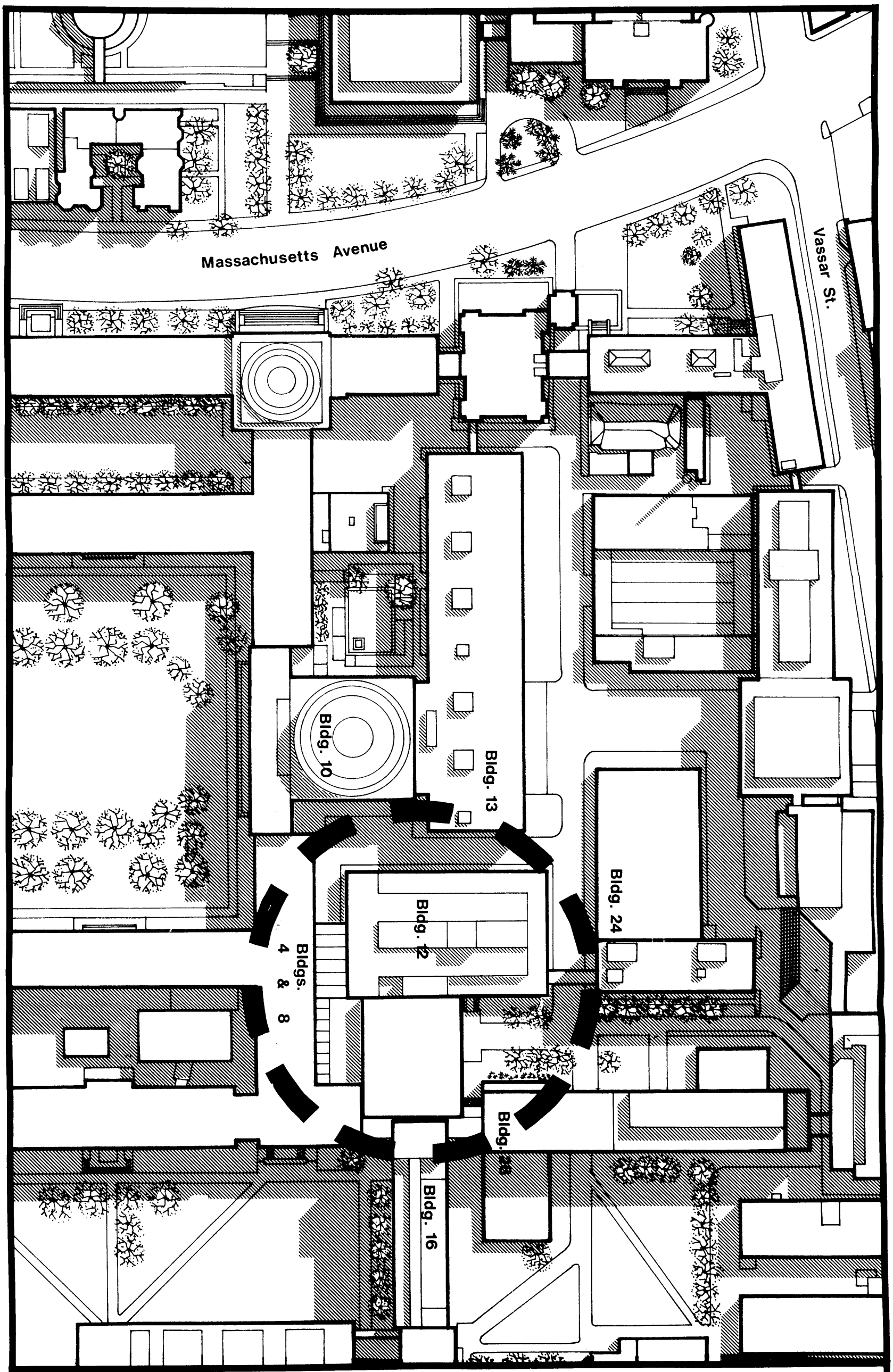
- The site is located in a key position relative to the north side of the campus: it is a potential route to the new Electrical Engineering building, and parallels the route to 26-100, M.I.T.'s main lecture hall; it is also near the main vehicular traffic access to the campus from Vassar Street.

- It is one of the few remaining developable places on campus that have direct connection to the main corridor, though its ground level is one floor below.

- In terms of density, the site is underutilized: Building 12 is functionally only a two-story building.

- It offers sufficient space between Building 12 and surrounding structures (particularly Building 16), that can be taken over and spanned easily with a lightweight roof system (avoiding problems of disturbing existing foundations and of building in the area's characteristically poor load-bearing soil).

- Building 12 itself has a columnar bay system which would accomodate changes in the disposition of spaces within it.



M.I.T. CAMPUS PLAN: Location of design site

Redrawn from M.I.T. Planning Office base-map

Scale: 1" = 100'

Figure 7

Assumptions about the building problem. I made certain assumptions about the treatment of the existing buildings and the site which should be pointed out. The alterations which I proposed for Buildings 4 and 8 include only the basement (ground) and first (main) floors. I have acknowledged existing openings in the floors and substantial mezzanines, and have retained existing mechanical ducts, most of which continue to upper floors. The main corridor, major stairs, and main entrances remain where they are. What I have assumed changeable are mostly then the enclosures of the spaces, their exterior walls, and their subdivisions.

I left the floors and roof of Building 12 intact (except for raising the roof over one small section, not enough to cause foundation problems), and retained most of the existing mechanical systems (obvious fume hoods were taken out). A assumed that a public corridor should be retained through the building and that the four stairs would remain.

Vehicular access has been retained to the basement delivery area in Building 4. The small brick storage building (12A) has been removed so that the Theater for Environmental Arts could be fit into the space between Buildings 12 and 16. The glass links between Buildings 8 and 16 and Buildings 16 and 26 have been removed and replaced.

There are two components to what I considered as the basic building problem. First, the redistribution of spaces and uses within the existing buildings was a test of the ability of their spatial structuring and square footage to accomodate the programs' activities and their inter-relationships. Second, capturing of space between buildings, roofing it, and filling it with activities posed problems of interconnection, overlook, environmental controls, and disposition os paths and spaces relative to surrounding buildings and activities.

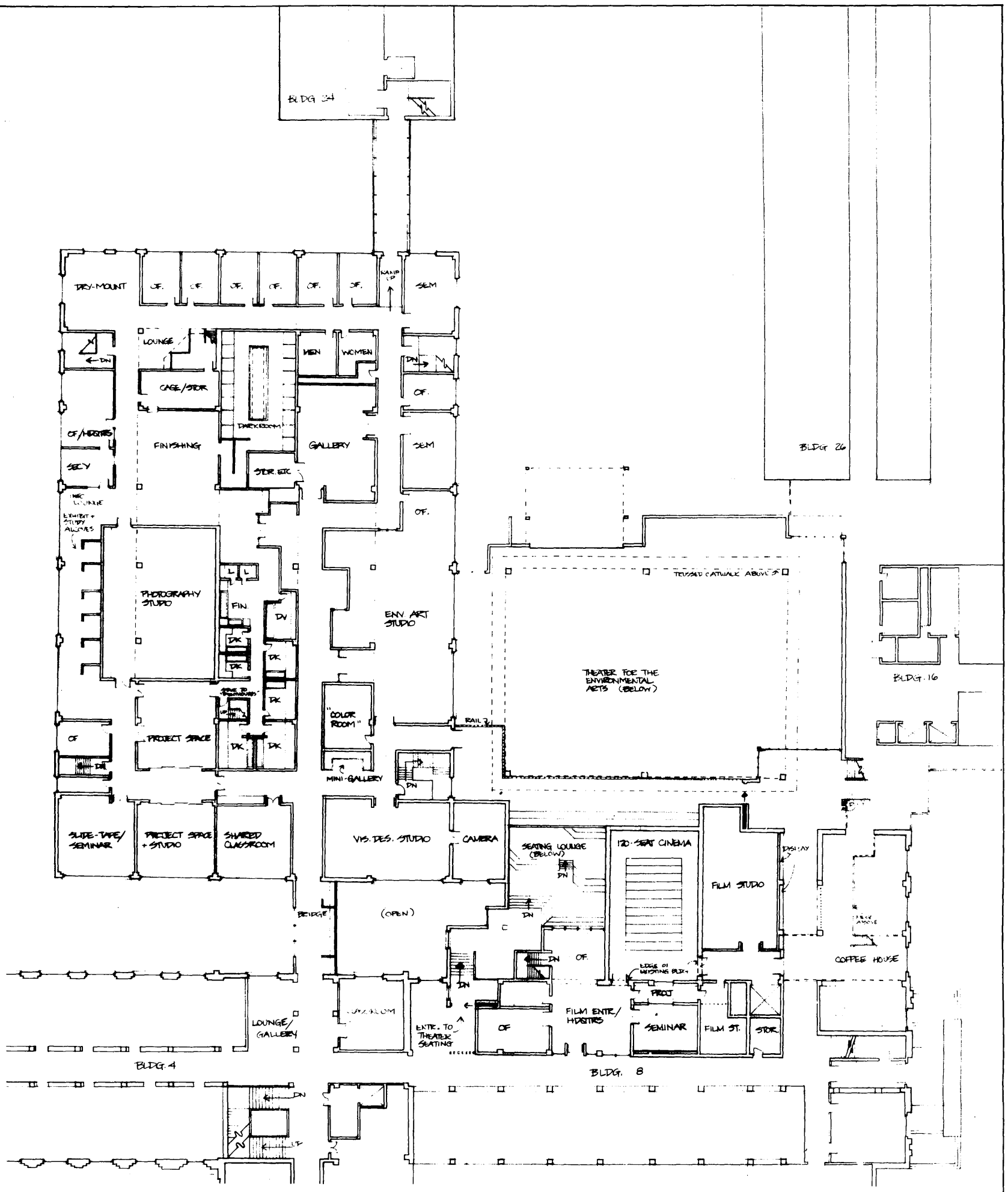
General description of the design. The program spaces for Photography, Visual Design, and Environmental Art were placed on the upper level of Building 12; the Visible Language Workshop was placed in the basement to connect vertically with Photography, and a shop was provided there to connect vertically with the other two programs above and laterally with the Theater for Environmental Arts. Film was put on the main corridor; its spaces spilled out into the filled-in area and extended to the ground floor where they connected with the Theater. A coffeehouse was located in the northeast corner of Building 8, where an important node seemed to develop.

The Theater for the Environmental Arts filled most of the space between the buildings, and used their facades

for two of its walls. A hangar door provided the entrance on the north side to permit vehicular access and to open the space to the outdoors. The main pedestrian links to the large space were defined as a bridge on the level of the main corridor running between the 8-16 link and Building 12, and as a gradually stepped lounge and viewing platform leading down from the main corridor to the ground level of the space.

Disposition of the path in Building 12 was determined by the fixing of their end points at existing links to Buildings 4 and 24. This naturally allowed a thicker zone to the west, where Photography was placed. Disposition of spaces in Building 12 was conditioned by changes in height of the roof and the placement of skylights. The placement of Photography's studios and finishing area responded to this and to the placement of columns; the darkrooms were placed in the relatively low and dark spaces in the middle of the building. The low roof over the Environmental Art studio was raised both to provide more space and light and to give the Theater beyond a higher face. The very top center section of the building contains some usable penthouses, but is mostly full of ducts; it was assumed to be a good location for individual study spaces and private nooks.

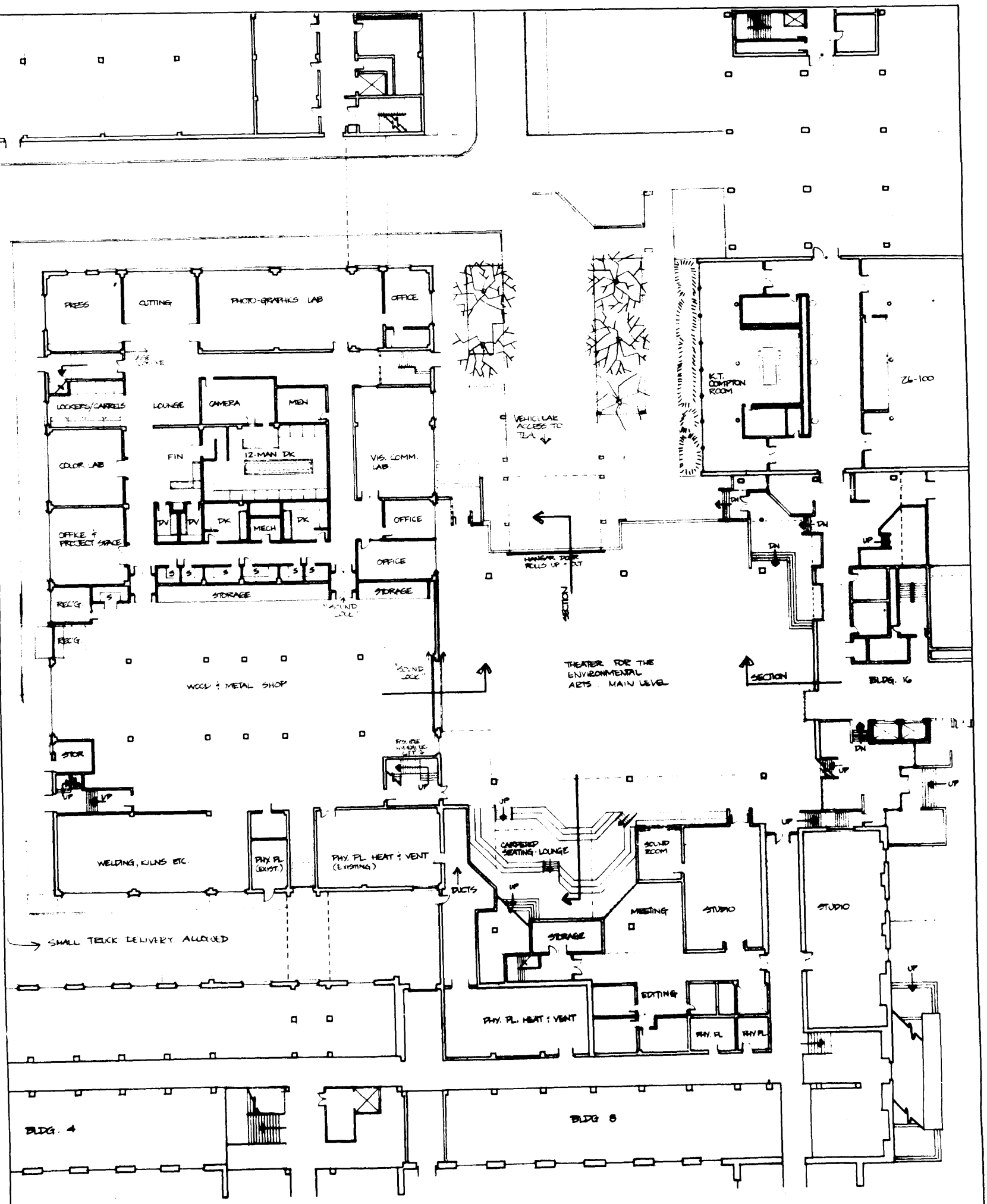
A breakdown of spaces and square footages is given in the Appendices.



ORIGINAL DESIGN : Main floor plan

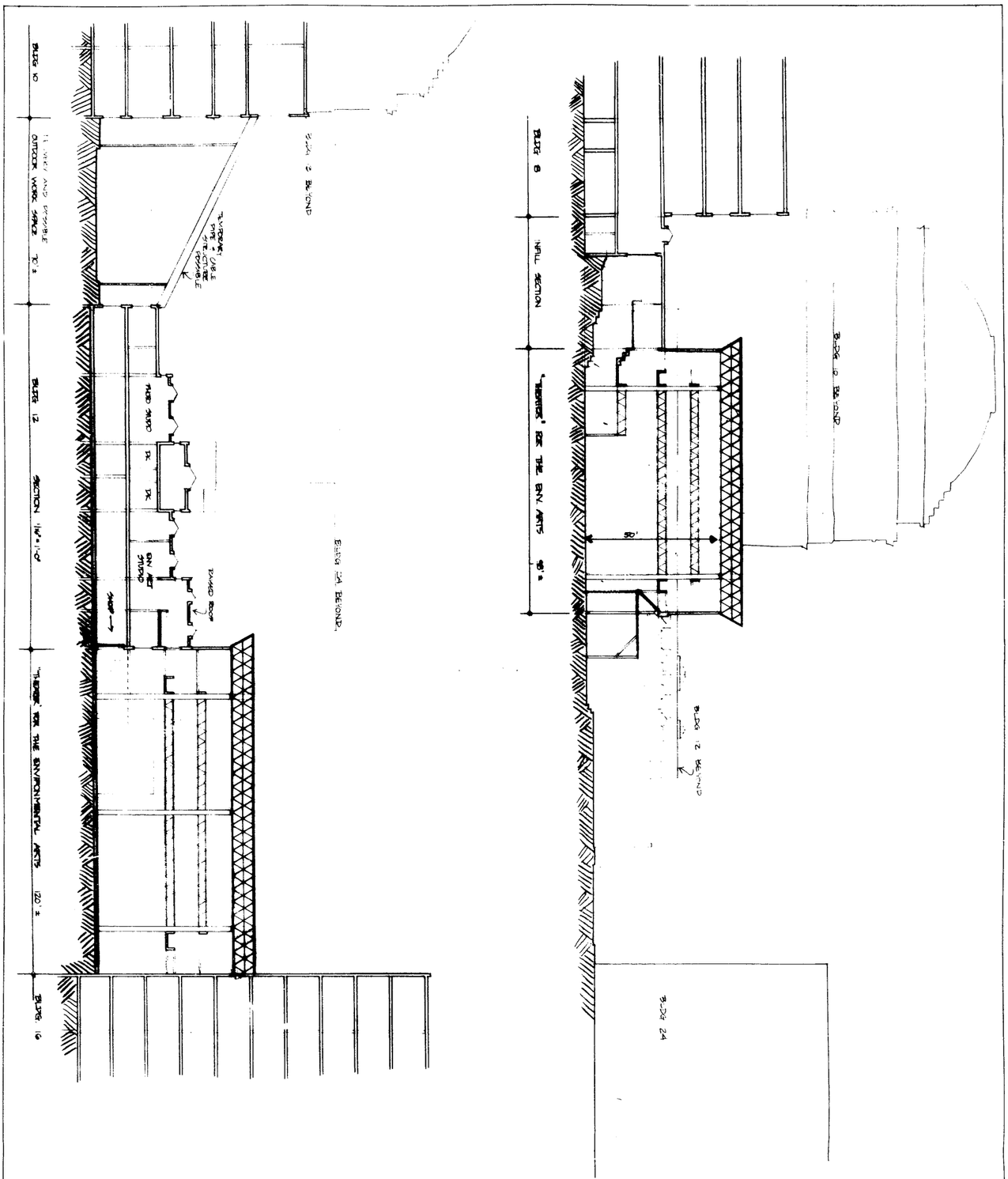
0 4 8 16 32

Figure 8



ORIGINAL DESIGN: Ground floor plan

Figure 9



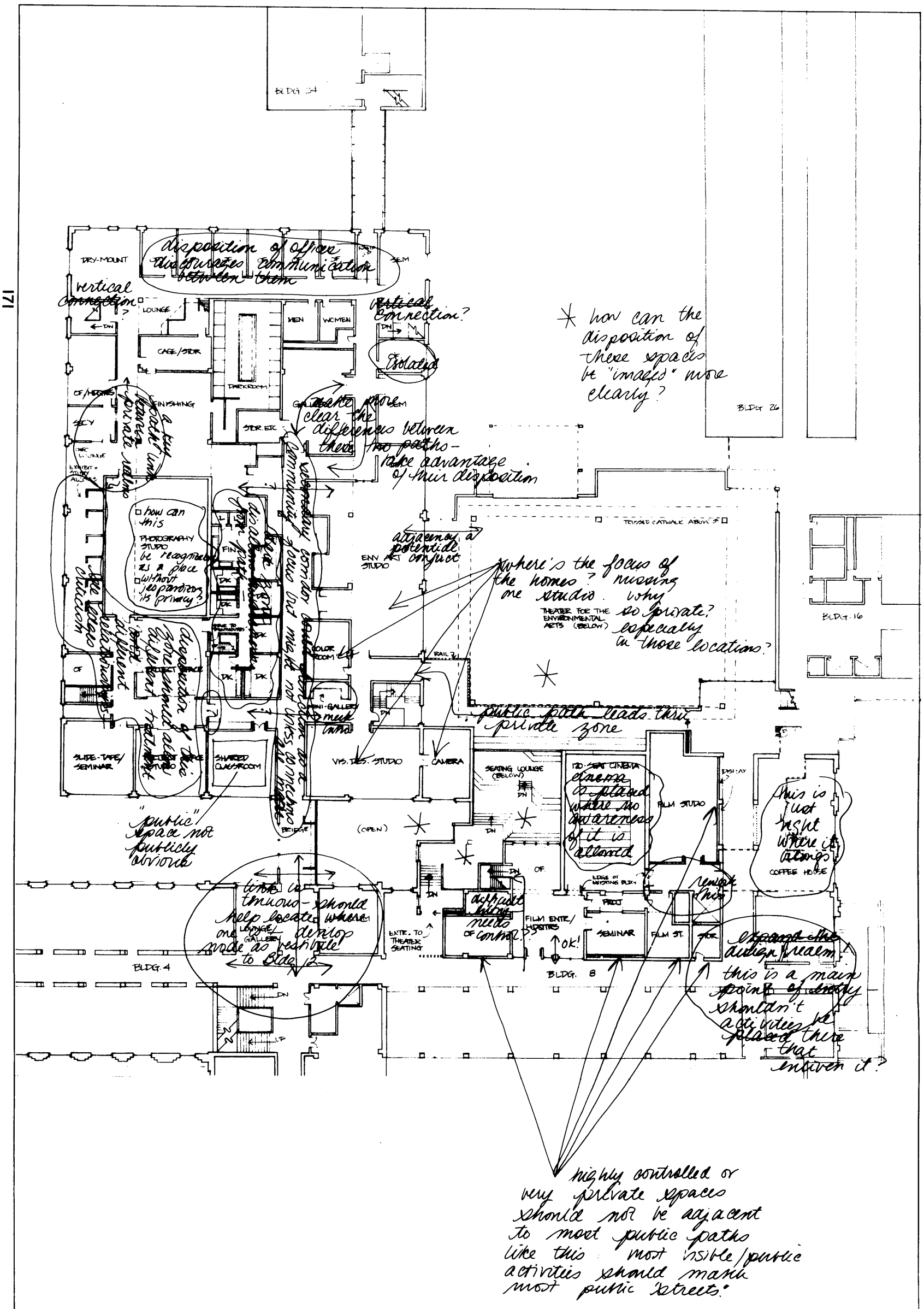
ORIGINAL DESIGN: Sections

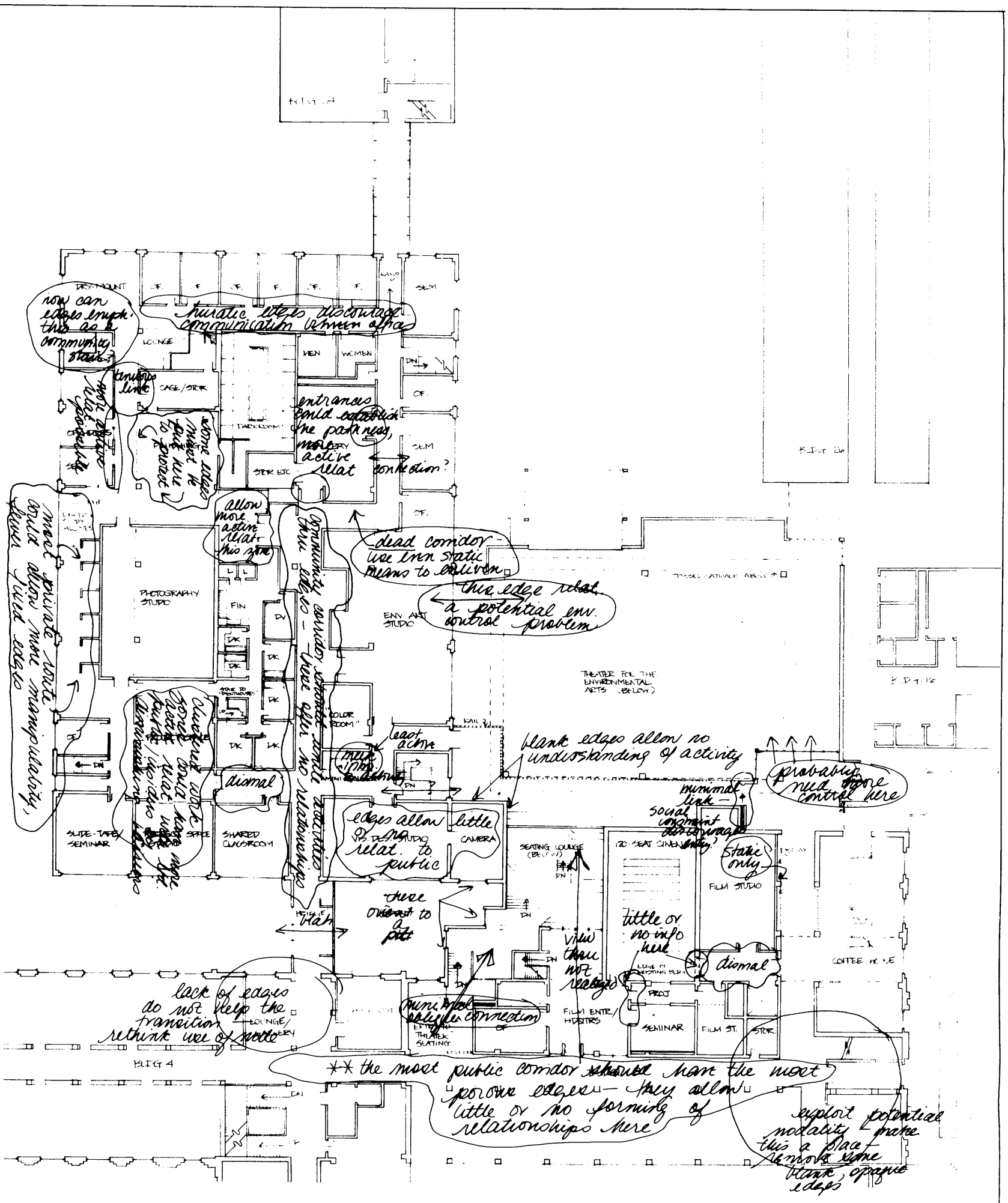
Figure 10

Design Criticism

The following drawings use the main corridor level of the original design as a base for criticizing that design according to the criteria developed in the analytical sections of this study. The criticism is divided into two parts which pertain to the two planning issues described in Section 1: relative disposition in space of activities and paths, and treatment of edges between public and private realms. As might be expected, these two critiques overlap in their analysis. A bank of offices, for instance, is described as hieratic and discouraging of communication on both counts, though for different reasons.

The discussion that follows the drawings summarizes them, setting out the criticisms in a more legible and organized manner. More thorough treatment of issues of Home and Street are taken up there, along with coordination with the categorizations of relationships described in Section 2.


BLDG 24
DRY-MOUNT
disposition of office
vertical connection ?
LOUNGE
MEN
WOMEN
DN
CAGE/STOR
DARKROOM
STOR. ETC
vertical connection?
Isolated
BLDG 26
* how can the disposition of these spaces be "images" more clearly?
create more clear the differences between the two paths - take advantage of their disposition
a key control between private and
how can this PHOTOGRAPHY STUDIO be recognized as a place without jeopardizing its privacy?
an adjacency with different privacy requirements
a juxtaposition of the different privacy requirements
a relationship with different privacy requirements
a juxtaposition of different privacy requirements
a relationship with different privacy requirements
a juxtaposition of different privacy requirements
a relationship with different privacy requirements
a juxtaposition of



General comments:
Edges here tend to divide the realms instead of mediate between them.
Most relationships are static or least active.
Edges are treated the same wherever they are & don't take advantage of relative privacy of paths.

DESIGN CRITIQUE 2: Treatment of edges

Figure 12

DESIGN CRITIQUE 1: Disposition of spaces.

Part A: The Street.

The design critiques set out several issues concerning the disposition of the Street and of spaces in relation to it: differentiation of paths by degrees of publicness; matching of publicness (frames of reference) of those paths with relative publicness of activities lining them; characterization or identification of paths; nodality and connection of paths as expressions of location. These are examined separately and referenced to the criticisms.

Differentiation of paths. The design sets up the opportunity for three degrees of publicness of its paths, conditioned by their placement relative to other paths and to activity spaces. The main corridor is obviously the busiest and most public path. The secondary corridor through Building 12 has potential to be a community street; though it would be traversed by the general public, it goes through the arts realm and has potential for identification with the activities that line it. As activities are presently disposed to either side of this path (Photography on one side, Visual Design and Environmental Art on the other), it acts

divisively. Such a community street should perhaps exploit the opportunities it offers for claim of the public realm and for traversal of it if it is to become a means for promoting cooperation among programs. The gallery that it passes through is one locus for this cooperation, but the opportunity should belong to the whole street and not just to one small segment.

The bridge that forms one edge of the Theater for the Environmental Arts, while accessible to the general public at certain times, is considered a limited public path because it is not a main route, nor always an accessible one, and because it relates directly and solely to the workshop spaces below. Its position allows active observation of the goings-on below, a desirable relationship under these circumstances. The most private street shown by the design is the "back alley" that runs along the west side of Building 12 in the Photography zone; it is disposed to connect the more private work areas to either side to the public entrance area.

Matching degrees of publicness or frames of reference. Though the design provides this hierarchy of streets, the disposition of spaces for private activities relative to them does not always make a good match: this appears to be a basic shortcoming of the design. The gross location of

programs relative to the paths does not seem to be the issue. The film program is on the main corridor because its screening room has the greatest potential for public access; Photography and Environmental Art are characterized by workshop experiences but have things to show, and seem suited to the secondary path. Environmental Art and Film relate most directly with the Theater's use and therefore deserve to be adjacent to it.

What is a problem, however, is the putting of highly controlled and highly private spaces directly along the corridors. As was described in the illustrations to the Relationships Set, this is a problem that characterizes the blank corridors of M.I.T. Given the assumed design constraints, this may not have been avoidable in the case of Photography's bank of darkrooms, but certainly the "color" and "camera" rooms for Visual Design, and Film's offices, screening room, storage, and controlled studio are not appropriately placed.

Characterization or identification of paths. Beyond the placement of certain activities along a path, the path itself may be identifiable by being specially treated and by allowing special relationships to be established within it. Though this capacity is probably most effectively dealt with by treatment of edges, several examples have come up here. At the point where the secondary corridor through Building 12 forks through the gallery and around it, there is an

opportunity for distinguishing the experience and meaning of taking either path; in the present design, they are just there.

Two other examples occur at either end of the most private Photography path. The bank of offices at the north end, as they are all lined up, do not offer much potential for communication among them or with the program hearth/lounge across the hall; a clustered arrangement might provide them with a communal entrance zone as a special extension of the path. Finally, the private work zone to the south of the private path, if it were to be arranged less formally and permanently, might allow a more meandering way through, and thus a more active relationship with the activity (which would not be threatened if the path were truly private.)

Nodality and connection of paths as expression of location. When paths of differing degrees of publicness (which is mostly what is represented in this design), their crossing (X) or their junction (T, Y) may set up special opportunities to locate where one is in the place relative to other more public or private (or just other) areas around one. This aspect of nodes is especially important here as it expresses fundamentally a prepositional relationship with one's surroundings.

As it exists in the original design, the junction of the

link to Building 12 and the main corridor is tenuous, not much better than it is presently. Though one small bay has been opened up to ease the transition from the main corridor, one is not easily led into it, and no particular awareness of the spaces beyond or their contents is allowed. This junction has potential to act as a vestibule to Building 12 (even such a "least active" type of relationship at this scale may provide fairly structured and substantial clues to activities beyond without involving them directly) and to make a more lively node with the orange stair opposite it. Signals of the junction with another realm (through finishes for instance) might begin farther down each of the paths and prepare one for the change.

Likewise, the junction of paths at the east entry to the main buildings is presently (the existing condition is drawn unaltered in the design) not developed as a node, though it has very powerful means to indicate location by exiting outdoors. Similarly, the link between Buildings 8 and 16 offers the opportunity to refer one to the outdoors, and importantly also to the Theater for the Environmental Arts; it contains the means to channel people along the overlook into the Theater, into Buildings 8 and 16 via their corridors, or into the coffeehouse. This has been considered in the scope of the design problem, but is not discussed here any further because its levels and their complications

take it out of the realm of the criticism.

The final example worth noting is the junction between the most private Photography path and the public entrance zone. The path, which follows the low roof, bends there and offers the possibility for an interesting juncture with reference to the outdoors, and to the public path through the building; it is also at this point where the more public program hearth/waiting area may be located alongside the local "headquarters" for Photography, and the entrance to the main studio. It is definitely an information station, and must be further developed in order to run smoothly.

Part B: The Home.

There are four main issues considered here which disposition of spaces raises in connection with the Home: recognition of internal focus and ordering of spaces for those involved with the program; provision for connection among Homes; imaging of the Home and its public components by those in the public realm; and recognition by those in the public realm of a community of Homes. Again, examples of these are given separately and referred to their origin in the design critique.

Recognition of internal focus; ordering of Home.

The most complete example of Home shown on the upper level of the design scheme is the set of spaces designated for the Photography program. The Photography Home is discussed more thoroughly in the section on re-design, and has already been treated extensively in Street because of its "most private" path. Because the program requires a diverse set of types of spaces -- production, studying/displaying, and meeting -- it may offer a more imageable Home than Visual Design or Environmental Art which have been housed mainly in one space. Thus these last do not seem to have a set of

discrete spaces which one could point to as a Home; perhaps the Home is meant to evolve from the occupation of spaces, or maybe a collective Home should be identified. The meekness of the mini-gallery presently provided in the vestibule zone preceding the entrances to the two spaces, is perhaps not active enough to be a focus for Home.

Provision for connection among Homes. Connection among Homes may not only directly serve to identify a community environment, but more importantly, act as a basis for cooperation among disciplines. Connection across the corridor through Building 12 has already been cited in Street; if the disposition of spaces were to bring about sharing of work spaces, it would foster real and important connections among Homes and would influence the relationship among people by producing an active relationship of participation rather than simply an informal one.

The other locus for concern about connection among Homes occurs at the stairway between the Photography realm and Photo-Graphics below. The vertical relationship, when confined to that small an area, is difficult to maintain. Placement of facilities to be used by both sections adjacent to the stair would help, but there still may be no immediate visual connection.

Imaging of Home by those in the public realm. Having a public face on the Street is important in identifying the location of activities. The stair down to the Photo-Graphics spaces (on the other side of the building from the one just discussed) offers an opportunity for communication between the path and activities below. The mere existence of the stair as it is presently shown, however decorated or full of signs and evidence of the activity below, allows only a static relationship. A piece of the activity which could be easily separated and which could be identified as belonging to the program would have to be lodged near the top of the stair to provide a more active relationship.

As discussed in Street, the dispositions of the Film spaces relative to the main corridor do not optimize their relationship and its imaging for those in the public realm. The studio can only be seen from a dismal entranceway off a secondary corridor and is not associated with the rest of the spaces. The cinema space likewise is not easily seen as a piece. The stair that leads down to other activity spaces below is guarded by a secretarial station and is not visible to those in the main corridor. Re-design of this area discussed later takes into account the issues of public awareness of those spaces and relationships that are meant to be seen.

Recognition of a community of Homes. Recognition of a community environment for the arts through the disposition in space of their activities again is dependent on the connections they are seen to make through their shared circulation spaces or in their workshops. A workshop that might be shared by Visual Design and Photography, for instance, might not offer much opportunity to be seen from the public realm, but a space like the Theater for Environmental Arts may offer greater possibilities. Adjacency of program spaces and the Theater-workshop may not be sufficient to establish association between the zones. Potential extension of the activity spaces toward the larger workshop may be explored to achieve this.

The potential of the corridor through Building 12, as already discussed, may be imaged as a community street. The ability to recognize the Homes that line and use it depends on the disposition of their public faces along and across it. Treatment of edges may offer a more immediate means for identifying a community of Homes.

DESIGN CRITIQUE 2: Treatment of edges.

Disposition in space fundamentally influences the treatment of edges between public and private realms. When very private activities are placed along very public paths, for instance, their edges may need to be more impenetrable and exclusive than when the same activity occurs along an equally private path. In some cases, treatment of the edges may mitigate the lack of communication caused by disposition of the spaces. Some of the criticisms found in looking at the old design have been supplanted by the previous discussion of disposition. In general though, coordination between the disposition of a space and the treatment of its edges is important in allowing the environment to condition the degrees of exposure and access. Again, the issues raised by the criticism are examined through the Street and the Home.

PART A: The Street.

The edges are discussed here as they may act as guides for public paths, showing one's location and potential for movement, and as they may carry information about what is happening in the public realm, forming a variety of rela-

tionships between the realms.

Edges as guides to public movement. The critique points to both ambiguity and tyranny in the treatment of edges as guides. The junction of the link to Building 12 and the main corridor does not provide an easy transition or suggest change in the direction of one's movement. Greater structuring of the place through its edges may help this problem and, as discussed earlier, enforce the potential nodality of that location. Similarly, the junctions of the secondary corridor through Building 12 with the gallery do not make it obvious that the path is meant to go right through the space. Those coming from Building 24 would have to be trapped into entering it instead of continuing straight on; those coming from the other direction might hesitate, uncertain of which path to take. If the entrances were to be formed of operable walls rather than doors as shown here, they may not only become more logical paths of movement but would have the potential for forming more active (prepositional) relationships between the activities of the gallery and those in the public path.

The entrances to both of the routes from the public paths to the Theater for the Environmental Arts are constricted, and do not allow easy passage. They were designed to be closable, but only cause bottlenecks by their smallness.

Greater emphasis on going to the Theater space would help clarify potential patterns of movement. Another constricted link is the bridge that connects Buildings 4 and 12; this should be developed along with the node as preparation to the entry of the arts realm.

Another, less localized "tyranny" is caused by the fixity of the edges within the Photography's most private work zones along the outside wall and in the southern section of the building. In the most private zone, the paths may not need to be defined so decisively as in very public realms; the possibility of meandering through the studio space may increase the potential for active relationships.

Edges as conveyors of information between realms. The argument has been reiterated again and again in this study that enlivening of the public paths depends on the ability of its edges to convey information about the activities beyond them. The blank edges that are found throughout the design may have the character of onto, but that allows only static relationships between public and private realms. Enlivenment depends on the awareness of beyond as a prepositional relationship that may also include more immediate and potentially more active relationships described by in, into, next to, in front of, and so on. All of the paths in the design are characterized by these blank walls that divide

the realms rather than mediate between them.

The most public path should have porous edges that reveal activities immediately adjacent and that orient one to spaces and activities beyond. The entrance to the Film program allows immediate views of the waiting area in front of the screening rooms, but the view (which is provided for) to the Theater may be blocked by activities in the forefront or may be too distant, and thus are not realized. The other point of access to the large space from the main corridor also makes perceiving the space beyond difficult.

The most private paths too should take advantage of the protection their disposition allows and allow greater porosity of the edges, even as furnishings or partial barriers.

PART B: The Home.

The design critique raises two main issues concerning treatment of edges as it affects the Home. First, edges are most often required to protect the private activities, and to define their domain. Second, the edges may set up prepositional relationships that characterize one realm as compared to another, setting up opportunities for

for manipulation for example.

Most of the blank edges found in the design could be defended on the grounds that controls over privacy or environmental conditions were necessary for the functioning of the activities. The over-riding concern for the privacy of the Home comes from two sources. First, the programming of space needs tends to identify space types and requirements, and perhaps relationship among spaces, even to the point of determining the nature and relative location of communal spaces. The programming must also become concerned with the Street and with the connections that could be made with the Homes. Then the issues of protection can re-appear. The design here was so concerned with provision of a view of the finishing area from the path that it did not consider the definition that that activity would require. The second reason for blank edges comes from the desire to articulate spaces as discrete and claimable without particular regard to either the control requirements or the tolerance of scrutiny the activities might need or allow; when in doubt, close it off seems to be the motto.

The other issue is more intriguing. Can the prepositions characterize relationships sufficiently to identify them with particular realms? The ability to manipulate one's surroundings as a test of belonging has been mentioned

as characterizing the Home; the opportunities for providing a more manipulable environment for the individual study and exhibition nooks along the windows and for the project space in the Photography realm, have already been mentioned, as has the onto character of surfaces. The question remains however, whether a person's recognition of a certain zone -- belonging to one Home or a group of Homes -- as a unit can be based on the kinds of physical and interpersonal relationships they may allow through the edges between their several types of activity spaces and the public path.

Beginning to re-design

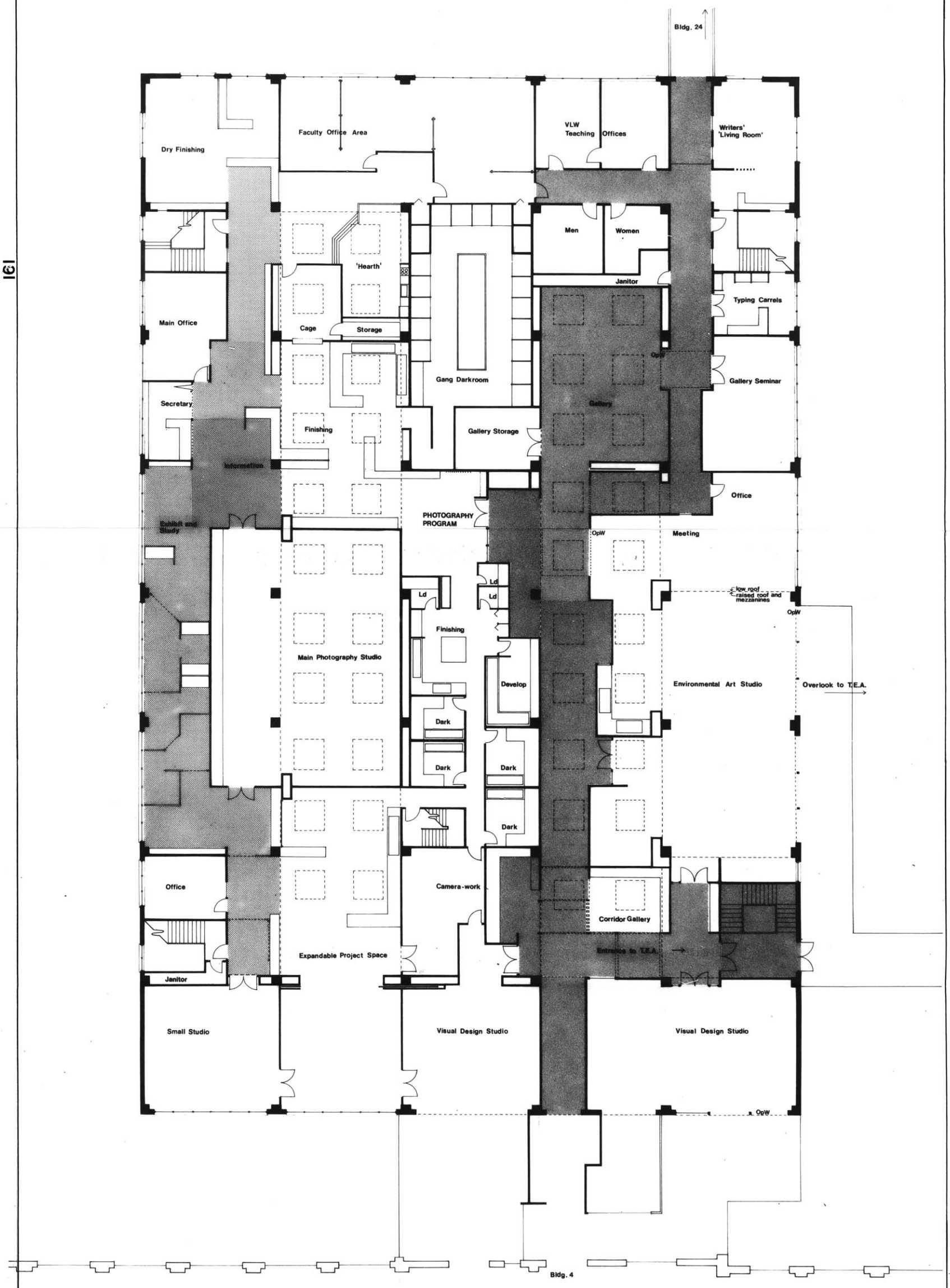
As a result of the criticism, three main areas of the design have been reconsidered. They are assumed to represent a sampling of the issues concerning the disposition of spaces and the treatment of edges that were introduced by the criticism, and illustrate key concerns for the Home and the Street.

1. The Photography Home was left virtually the way it was in terms of the disposition of its spaces, but treatment of their edges has been rethought. As a result, more detailed work on finishes has been attempted.

2. The Film section's spaces on the upper level were redesigned so that they would allow a more active relationship with the public corridor. Some re-programming was done, not so as to represent the needs of the Film section, but to explore that location, its potential for public exposure, and means for achieving active relationships between public and private realms.

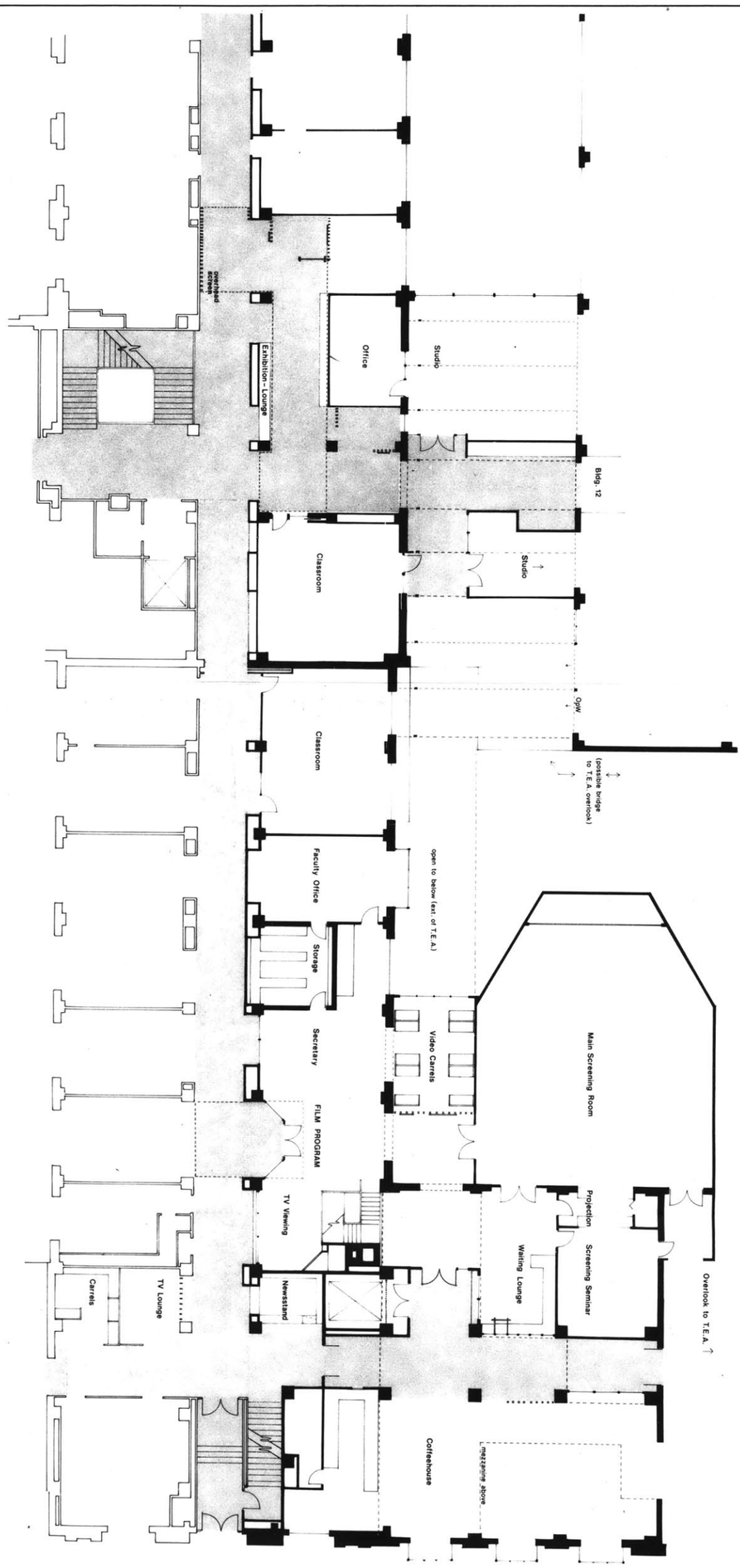
3. The third section that I started to reconsider is the community corridor through Building 12, both as it joins other paths and as it offers opportunities to make connections among programs and to allow the programs to be publicly expressed in the adjoining path.

The design drawings are followed by more detailed descriptions of these reconsidered areas. Though the actual changes made are fairly minor (given the circumstances of the building and the assumptions about it), the changes are presented here as they summarize the criticisms and offer some reaction to them.



REVISED DESIGN: Building 12

Figure 13



REVISED DESIGN: Buildings 4 & 8

0 4 8 16

Figure 14

DESIGN REVISION 1: The Photography Home.

Response to the criticisms. Most of the criticisms of the Photography program spaces were concerned with the inordinate fixing of barriers between use-zones, that is, the making of specific rooms to house activities which not only did not need such protection from scrutiny by their location, but also would have benefited from allowing for growth and change within and among them. Thus the basic disposition of spaces within the Photography realm remains unaltered, while the edge treatments are reconsidered.

The breadth of "circulation" spaces -- notably the entrance vestibule and the private walkway along the west window wall whose shape and size were derived from the circumstances of the building and the accomodation of certain large spaces like the studio -- allow themselves to be filled up with smaller elements such as lockers, exhibit panels, counters and tables, and other furnishings. A limited, modular set of these, whose dimensions have been indicated, has been placed throughout as an indication of one way of using these spaces.

Likewise, the edges of the several finishing areas and

of the special project space are considered to be made of movable furnishings, based on the same assumptions of size. These are only begun to be reconsidered; the design drawing, in essence, sets out the specifications for the general types and possible arrangements of edge zones. The creation of thick edge zones, rather than singular edges, is considered appropriate here because it establishes incremental, personal control over protection of one's space and because it allows (as partial barriers) communication and even shared use across the edges.

Other finishes. Taking the base drawing of the original scheme to a larger scale (drawn at 1/8" = 1' instead of 1/16" = 1' as the first set) has also allowed the notation of overhead skylights and level changes, and more exact location of duct spaces. These help describe the circumstances of the building that condition the arrangement of spaces within it. It then becomes reasonable to call out at least some of the other surface finishes that characterize the spaces (if not draw them in -- most are left out for clarity's sake).

All wall surfaces are assumed to be of homosote or a similar, tackable material that allows painting and repainting and maximum use of all the surfaces for exhibits. The floor material, however, changes in various places and is meant to help zone the spaces for various uses. The

floors of the production spaces (darkrooms, finishing areas, etc.) are necessarily made to be water- and chemical- resistant, hard surfaces, as the building presently has. Those of the small and large studios are to be wood, laid on sleepers over the present floor; a wooden floor would allow resilience (and comparative warmth) for class use, and would tolerate painting and some attachment to it.

The remaining spaces do not necessitate special floor surfaces according to their uses, and can thus be treated to create zones and to signal relationships. The private walkway may be carpeted, for sound purposes, and for making distinct continuity and commonality along the path; the secretarial station and lounges within it could be re-arranged and zoned by furnishings. The entrance zone, both inside and out, could also be carpeted, though perhaps in a different color to distinguish it from the most private zone. These two zones meet in a node at the entrance to the main studio whose location deserves special emphasis; finishes could combine to reinforce that spot.

A note about light. Ceiling grid. The basic disposition of spaces within the photography realm responds directly to sources (or absence) of natural light. The gallery, main finishing area, project space, and studio are placed under skylights; other activities which would benefit from having

views to the outdoors are placed near exterior windows. Darkrooms are located under the low, dark, central section of the building. Artificial light is also needed, though, and is imagined to be provided by lamps mounted on ceiling grids distributed throughout the photography spaces. This would allow task lighting within work areas, and special lighting of exhibit surfaces, particularly along the private walkway. The ceiling grid, based on four and six foot square modules (to accomodate loactions of skylights) provide a framework for darkening skylit spaces and establish numerous points for attachment of vertical panels and location of other furnishings.

Programmatic justification. The programmatic justification for these revisions is twofold. First, attention to the finishes and the smallest scale edge treatment is important in describing the Home in general. Second, the improvisational character of the particular finishes described is critical for Homes for the arts. The ability to manipulate and change the local environment is presumed to have educational value, and seems likely to challenge and hold the interest of those involved in the program; providing the framework and the means for manipulating the environment may act as minimal guide, however helpful, to the occupation and use of the place.

DESIGN REVISION 2: A public face for the Film program

Response to criticisms. The third area of criticism which has been rethought is the intersection of the main corridor and the Building 8 corridor at the east entrance to the main buildings, where the Film program has been placed.

In addition to the coffeehouse which would have porous edges and a window poked in the mezzanine wall overlooking the corridor, the corners immediately opposite the stairway and entrance have been opened. One, which is presently used for storage, would become a corner newsstand; the other, now a lab, would become a small TV lounge (an outpost of the Film program perhaps) and a place for carrels and other small student stations.

Re-programming Film program spaces. The Film program spaces, because they have never been definitively programmed, have provided an opportunity to experiment with them and their relationships to the public realm. The attempt was to locate Film activities which could be essentially public (i.e. allowing physical and sensory access) within reach of the node. This meant inventing some activities to go there, though the ones chosen would be plausible within the program.

These spaces are listed here as they respond to relationships with the public realm, discussed in terms set out in the second section of this study.

Group 1: Screening rooms, film-showing activities.

Main screening room(s)

- activity is publicly accessible
- relationship is generally formal, highly controlled (because of the nature of the activity)
- physical design often emphasizes entrance; other than entrance areas, screening facilities may offer few possibilities for direct active informal relationships with the public realm

Entrance lounge, waiting space

- activity is a necessary adjunct to screening rooms
- this activity itself is highly accessible, and may act as an intermediary between the public path and formal screening areas; the relationship may be informal, active or even most active.

Projection booth

- activity is necessary adjunct to screening rooms.
- the relationship to the public realm may be active or controlled depending on the social context and

the physical disposition; if active, the projection booth may give evidence of the screening room beyond and increase the active-ness of the relationship between public realm and that formal activity.

Group 2: Individual work spaces.

Video carrels

- activity at close range needs stringent controls, but because of the use of recognizable equipment, it may offer the possibility of a least active relationship with the public realm

Secretarial station, dispensary

- a secretarial station, broadly defined, could combine the function of receptionist/information and that of the management of the video carrels and other dispensing of equipment
- the receptionist/librarian function could allow the activity to have an active relationship with the public realm, and even a most active relationship within the Film program spaces themselves.

Storage

- a necessary support for the secretarial station,

but because of the controls needed, it offers no relationship to the public realm

- its only usefulness in determining disposition of spaces may be in blocking the view of other activities

Faculty offices

- in addition to being used as private work and meeting spaces, faculty offices of a large enough dimension could be used for small screenings and informal contacts between faculty and students
- offers little opportunity to inform the general public realm, though may offer possible informal and formal relationships for insiders (or from "inside" space)

Group 3: Communal spaces

TV lounge

- with increasing emphasis on video, a large TV area may be desirable, at least for casual screenings.
- because the object of attention is large enough and potentially public enough (cf. video carrels) to be visible from the public realm, and because it does not require the stringency of control that a film screening room does, it may offer more active

relationships to the public path

Information station/ public "hearth"

- as with the screening room entrance, any information station that does not require a "gatekeeper" may offer active relationships with the public realm
- this might include signalling the entrance to the Film spaces from the public path, small kiosks or bulletin boards, or libraries of film publications, and even evidence of connection to other production activities

Production spaces and other facilities which might need more stringent environmental or social controls have been eliminated from this list and have been accomodated on the lower level of the Film program spaces. The activities listed above have been placed within the most public spaces along the main corridor to take advantage of their abilities to inform and enliven that most public path.

DESIGN REVISION 3: the "community street"

Response to criticisms. The corridor which runs through Building 12 was criticized as being divisive both by its edges and by disposition of spaces along it. Some revisions have been made in the design scheme to ameliorate this, without altering the basis of the design presented so far.

The junction between the Building 12 corridor and the main corridor has been developed as a node at the orange stair. Though the circumstances of that location (walls full of ducts, fairly private activities located along its edges, doubly closed service elevator, etc.) make it difficult to open up, and there is no program for what be put there instead, assumptions have been made. A classroom suitable for projection has been placed to the east of the link; though in a public location and windowed (shuttered to close for light control), this classroom would be primarily used by the arts activities. Further, an exhibition-lounge has been opened up there to act as a vestibule for the entrance of arts spaces. Overhead screens incorporating both the lounge and a piece of the main corridor signal and ease the change, as do counters, colors, and other finishes. A hanging "sculpture" in the intersection would point the way to the

arts activities.

The link between Buildings 4 and 12 has been expanded to be a floored and greenhouse-roofed connection between the buildings. This would further the connection to Building 12 from the main corridor because one would perceive this light-filled zone beyond. The expanded link also allows the accomodation of extended Visual Design studios to either side of the path, with windowed entrances giving clues to the activities within. The link may also be seen as a vestibule entrance to the Theater for the Environmental Arts.

The disposition of one of the Visual Design studios to the west of the corridor places it within the reach of the Photography zone, deliberately to allow cooperation between the disciplines and sharing of the expandable project space and darkroom facilities. A small gallery spanning the path (overhead at the same level as the low center part though under the skylit portion of the building) unites the studios across the hall and gives them a place to display and use objects produced in other years in the visual design classes.

A similar extension of the low section of the building occurs farther down the path, where an operable, lift-up wall from the Environmental Art studio bridges the corridor

and enforces a link with the lower, transparent Photography vestibule. The corridor between these two overhead links is assumed to be walled with tackable, paintable, messable material; because the Environmental Design studio to the east has a raised roof along that area, the ceiling in the public space may also be easily accessible, and though installed with artificial lights (for safety regulations), the ceiling may be gridded around and across the skylights and allow easy attachment.

Minor changes in the entrance to the gallery which the corridor passes through, described earlier, ease the the transition and develop a small outer gallery along the alternate route around the main exhibition space. Connection is also made across the hall at the outlet from the gallery, to a seminar room meant to be associated with its use. Also, the area at the northeast stair has been developed to give greater evidence of the Visible Language Workshop below.

There are two main assumptions concerning the community street as a notion that have conditioned even these minor changes in the scheme. One takes the stand that such a street ought to give evidence of the spaces along it, signalling their entryways and their connections. The second, related attitude makes the argument that the street itself should

reflect its "owners", that there should be opportunities for claiming the street and giving it a facade that is characteristic of the activities at any time. The finishes thus play a key role in accomplishing this. Because the activities themselves are concerned with the visual environment, they ought to design or improvise the finishes themselves. Providing the opportunities and perhaps a basic framework for that is perhaps as far as the architect should go in specifying the character of the environment.

Conclusion: further work

Because of the range of things I have decided to investigate and report on, this study represents only a beginning effort to deal with the broad topic of relationships between the public environment and private activity spaces in educational environments. In conclusion, I would like to point out three major areas of work identified by this study which could be examined more thoroughly in order to extend and diversify its scope. These are concerned both with the contextual problems of educational (arts) environments and with the methods of dealing with and designing them.

Educative environments. First, the notion of an educational environment that is educative in itself is appealing as an attitude and should be developed further and validated through literature already written on the subject, through observation and analysis of existing educational settings, and perhaps through further articulation of the attitude

itself (as with the images of Home and Street). The relationships that have been cited in this study were developed in the context of arts activities, but are perhaps more generic classifications and could be expanded to include other educational activities more specifically.

Arts activities. The relationships that are particularly appropriate to arts activities should then be gleaned from the more general set. One way of approaching this problem would be to identify the control requirements for various arts activities and to assess those requirements relative to the activity's ability to inform and enliven the public realm. The issues of control requirements should not only include environmental control conditions and privacy control issues, but also approach the larger scale relational issues of proximities and groupings among spaces that belong to a particular program set and among programs themselves. Such an undertaking would help to set a framework for organizing activities for design purposes and identify a set of criteria for the structuring of space to accomodate the respective needs of the Homes and Streets. The differences among arts and other activities might then become more apparent.

Prepositional relationships. The notion of a relational

"grammar" that might be useful in a design process has been introduced in this study in a number of ways. The use of prepositions as a means for describing and characterizing physical relationships in the environment was the topic of the first section; these characterizations and their significance could be made more precise and could benefit from examples from existing contexts where the individual elements could be seen as part of a larger setting.

The interpersonal relationships discussed in Section 2 could likewise be more clearly defined, and referenced to the physical setting. In order to criticize and revise the categorizations of relationships, existing settings which would more closely approach an ideal characterization should be examined. Control requirements and proximities mentioned above would introduce yet another set of relational parameters to be dealt with, so a framework for coordinating these various inputs would be helpful in determining the timing and usefulness of each in a design process.

In this study, the characterization of relationships has been used only to criticize and recycle an existing design in an intermediate phase. It is yet to be determined whether the approach could be useful to the earliest phases of programming or site analysis. Further, focussing on the physical and interpersonal relationships has been examined

only in the designer's frame of reference. Relational patterns, it would seem, could be used as intermediaries between verbal descriptions of intentions and a final design phase; concise characterizations of both physical and interpersonal relationships would ease this intermediate phase, both for the designer and for the "client".

If the concerns for enabling "transaction" among people both within relatively private realms and between public and private realms can genuinely serve as the basis for the design of an educational environment, then it would seem that such further investigation of relationships as the "raw material" for design could become not only an interesting exercise, but actually the basis for a design method which would directly respond to the needs and qualities of such educational and educative environments.

FOOTNOTES

1. The arts are represented at M.I.T. in the curricula of the two Departments, the Architecture Department of the School of Architecture and Planning, and the Humanities Department of the School of Humanities and Social Sciences. The fields they represent include: film, photography, photo-graphics, visual design, environmental art, and history, theory, criticism of art and architecture, found in the Architecture Department where they link with architectural design; and drama, music, creative writing, and literature in the Humanities Department. There are also a Center for Advanced Visual Studies, an Institute Exhibitions Program, and the Rotch Library which holds many visual documents. Further, the arts dominate the list of extra-curricular activities.

   Successive presidents of M.I.T. have called for a greater role for the arts in its education, taking advantage of the capabilities of M.I.T. to act as a resource for innovation and experimentation in the arts. The Council for the Arts at M.I.T., a group of friends and alumni of the Institute who share this interest in furthering the arts, has been formed to act as catalyst and advisor for growth of arts activities at M.I.T.

   A faculty committee, chaired by Professor Donlyn Lyndon and composed of representatives of the arts fields and administrative offices, has been meeting almost weekly for the past two years on the subject of facilities and program planning. It is they, through a corollary arts environments study effort, who are presently responsible for ongoing planning for the arts at M.I.T.

2. The Axioms report was the first to come out of discussions among the arts faculty. Dated March, 1973, it begins with a set of axioms, guiding principles which the group wrote collectively and which it has felt are basic to any development of arts facilities at M.I.T. The report, officially made to President Wiesner, summarizes the discussion to date. List of facilities needs complied through interviews with faculty in the various arts programs are included at the end. Part of this report is included here as Appendix A.

3. The conflicts between the desire for public exposure to activities and their need for protection did not go unnoticed in the faculty disucssions. The Axioms report is full of references to this dilemma.

The argument for at least sensory access to the workings of a place in order to orient onself in it can be approached from many vantage points. Orientation, explained simply, is both a physical and a psychological phenomenon. One responds to physical surroundings and interprets their contents according to perception of environmental clues, one's experience with similar clues or similar places, one's frame of reference or role relative to the scene, and so on. See, for instance, Kevin Lynch, The Image of the City (Cambridge, 1971), especially 123 ff..

The perceptual psychologist James J. Gibson, explains orientation in space as one's ability to perceive the immediate surroundings on all sides and to become aware of the world beyond the immediate visible realm. One should have the further sense that the world beyond the range of vision contains places where one could go or which one could inhabit. James J. Gibson, The Perception of the Visual World (Boston: 1950), 45-46.

It has been pointed out, by Mike Guran and others, that perhaps one of the reasons for one's almost claustrophobic feeling of density which M.I.T.'s seemingly endless corridors provide, is that one cannot tell what is behind many of those doors. Perception of the physical world is only part of the issue, however. What one makes of the lifestyles one may associate with various activities, of the paths through the curriculum, and of interpersonal or social relationships in the place, is yet another set of issues. See Benson R. Snyder, The Hidden Curriculum (Cambridge: 1973).

4. The image, which was originally expressed as hearth, came from Christopher Alexander who has been in charge of physical planning at the University of Oregon, where Professor Trotter is Dean of Music. His presentation was an account of his school's recent experiences using Alexander's pattern language and associated techniques for programming incremental development of facilities for music at Oregon.

The conference was arranged through the Arts Environments Study, with the support of M.I.T.'s Council for the Arts. The conference brought three outside "consultants" -- Professor Trotter, and two architects, Hugh Hardy from New York, and Barton Myers from Toronto -- to

M.I.T. for two days to meet with members of the arts faculty and their guests.

5. This is perhaps a dubious analogy. The argument was made to the faculty committee in the later fall of 1972 by Ken Skier, a student in the Humanities section concerned with the Creative Writing program. His scheme, half humourous but well-intentioned, was to mount a geodesic dome, in imitation of the main dome, on top of the Hayden building which houses much of the Humanities Department and its library. The dome would become a highly identifiable locus for activities of the Creative Writing program.

   Even before that, the facilities needs articulated by members of the arts faculty were full of references to their present invisibility. The arguments which called for identifiable loci for the activities were aimed not only so those not presently involved could become aware of the goings-on, but more importantly so that those seriously committed could have a place with which to identify.

6. Gaston Bachelard, The Poetics of Space (Boston: 1969), 5. The book is largely concerned with the archetypal experience of inhabiting.

7. Alexander's patterns that pertain to university planning (revealed through Professor Trotter's accounts; published? See note 4 above.) contain many descriptions, specific criteria, and researched justification for such spaces, carefully cross-referenced as they may add up to an almost formulaic description of his notions (at least) of university.

   The Arts Environments Study at M.I.T. has attempted to derive the criteria for Home from the particular programs. Though some of the same kinds of spaces that Alexander describes will be called for, the needs will have been adjusted for this particular context.

8. Arts activities presently are spread all over campus, as far as half a mile apart, and are not necessarily housed in logical combinations nor in the best spaces for their needs. Many are cramped (Photography needs almost twice its present space even just to accomodate present demand for their subjects, for instance.); others suffer from poor environmental controls (Music and Film have sound

overlap problems); others lack specific facilities (shops and darkrooms for Environmental Art and Visual Design). Still others need collective work spaces (Creative Writing). The list goes on and on. These problematic conditions, coupled with the remoteness of the locations which inhibits connections among programs, are discussed in the Axioms report and form the basis of arguments for new facilities.

9. This physical connectedness has caused the feeling that M.I.T.'s physical planning is more advanced than that of most other American campuses where individual buildings and clusters are scattered throughout a field of green open space. M.I.T.'s plan apparently appeals to planners because it seems conceptually more urban and enabling of communication among people. An article in Architectural Forum, v. 120, no. 6 (June, 1964), a special issue on architecture in Boston, states that:

> M.I.T. holds that exciting things can and do happen when a mind from one discipline encounters a mind from another. It has no compunction about shifting departments around as one discipline flourishes and another begins to wither. The physical corollaries of these ideas are maximum linkage between buildings and maximum flexibility within them. (p. 120)

This article has been quoted by Shadrach Woods among illustrations of some of his concepts for the Dublin and Berlin Free Universities. See his article, "The Education Bazaar," Harvard Educational Review, v. 39, no. 4 (1969), 116-125, and particularly 122. For discussion and illustration of the Berlin Free University scheme, see Stanley Abercrombie, "BFU," Architecture Plus, v. 2, no. 1 (Jan./Feb., 1974), 32-45.

Accounts of some of the new universities built in Great Britain with the intention of providing "continuous teaching and learning environments" and environments capable of expansion and change may be found in Michael Brawne, ed., University Planning and Design (London: 1967) and in Richard P. Dober, The New Campus in Britain (New York: 1965). New universities built in France and Germany which were intended to reflect or to relate to urban forms and settings have been described in a special issue of techniques & ARCHITECTURE, no. 295 (Nov., 1973). See also the scheme for the University of Alberta at Edmonton, Canada, by Diamond and Myers, in Progressive Architecture (Feb., 1974). Comparative material may be found in Richard P. Dober, Campus Planning (New York: 1963).

Though none of the schemes described in these sources can be found to relate directly to the M.I.T. example, the fact that Shadrach Woods, op. cit., mentions it as a model seems significant. The urbane community character cited as a goal in many of these schemes is actually missing at M.I.T. Though the buildings are connected, communication between those engaged in different activities is not understood through the communal realm. Likewise, the flexibility of the buildings should be considered a myth, at least in terms of connection between the activity spaces and the corridors, sonce many are double-loaded structurally and most of their edges are full of ducts.

10. One of the most note-worthy glass-walled corridor schemes is that of the Hopkins Center at Dartmouth College in Hanover, New Hampshire. Originally planned as an arts center cum student center (to entice students in), it was given glass-walled corridors so that the students could not miss experiencing the arts. Those walls have proven to be an invasion of privacy for the activities behind them, however. Though some in the basement remain transparent, those facing onto more public (or more travelled) spaces have been obscured. See the discussion in Robert Klein, Paul Pangaro, Martin Rosenberg, and Karen Wheeler, "A Study of Arts Facilities at Five American Universities," unpub. ms., M.I.T., April, 1973.

11. The Network of Streets notion evolved at the beginning of the Arts Environments Study's programming efforts in the fall of 1973. The Bazaar, though a more appealing image than others involving commerce, was seen as limited. See, for example, the article by Shadrach Woods, op. cit.

12. Similar descriptions of edges can be found in Stuart Rose, A Notation Simulation for Composers of Space (Michigan State U.: 1968). Also, see Philip Thiel, "A Sequence-Experience Notation," Town Planning Review, v. XXXII, no. 1 (April, 1961), 33-52, and his later version, "Notes on the Description, Scaling, Notation, and Scoring of Some Perceptual and Cognitive Attributes of the Physical Environment," in Harold M. Proshansky, William H. Ittelson, and Leanne G. Rivlin, eds., Environmental Psychology: Man and his Physical Setting (New York: 1970), 593-619.

13. Professor Stanford Anderson, through the M.I.T./ Grunsfeld research study on urban public space, has developed notational systems for characterizing physical, sensory, and social constraint on access as it describes public (urban) "transactional" space. This system, perhaps with its categories subdivided even more finely for the environmental scale this study concerns, could be used to differentiate the impact of one type of edge treatment relative to another, but only within a greater physical and social context.

Another analytical notation, developed by Professor Donlyn Lyndon through the same study, involves taking sections through the street edge according to physical and perceived zones. Such a system would be potentially more useful in further development of this study because it addresses a smaller scale within the urban environment. Some of the "vocabulary" and ways of describing the edge that are used in this study have been derived from this source.

14. Studies of the sequential experience of public environments can be found in Thiel, op. cit., and Rose, op. cit. See also Lawrence Halprin, "Motation," Progressive Architecture (July, 1965), 129 ff. and Donald Appleyard, Kevin Lynch, and Jack Myer, View from the Road (Cambridge, 1964). These have been summarized and discussed in Premjit Talwar, Notation Systems in Architecture, M.Arch. Thesis, M.I.T., 1972.

15. These ideas have been presented throughout the Axioms report. The worry about "shielding from view the messy workings" (Axioms report, 2) can be seen as a reaction both against M.I.T.'s physical setting and against the typical, often monumental, Arts Center, which has been considered an inappropriate model for the kinds of interactive educational settings the arts faculty has been arguing for.

16. See Robert Sommer, Personal Space, the Behavioral Basis of Design (Englewood Cliffs, N.J.: 1969), 39 ff. which gives accounts of a study of library users and some of the behavioral means they use to control their privacy. Observations made throughout this book provide generally helpful information about this closer-grained personal control over one's environment.

17. The means of drawing the illustrations to the Relationships Set was chosen to match that used by Mike Guran for drawing "pattern-goals," the spaces and (roughly) the relationships among them that were expressed as needs for the various arts programs. In diagrams of space needs, the drawing technique seemed to be able to evoke the feeling of a space without defining it as a specific room.

Using the same drawing technique to describe actual spaces and relationships experienced through the edge has presented certain problems, however. The drawings easily show relationships through the ground, as the floor surface is the one best seen. Relationships through the edges are more difficult, depending on whether they are seen frontally or at an angle (in general, those seen frontally here are those which have thick or multiple-layered edges which are difficult to read at an angle). And, as in the Information Set, relationships established by the cover are impossible to show well in isometric. The major problem is that the drawings attempt to be both diagrammatic and pictorial at the same time, which not only makes them difficult to draw but diminishes their usefulness. A true pictorial representation of the spaces would have used perspective, but demonstration of relationships might rather have employed a notation system. Mike Guran's programming drawings use two types of notations for relationships. One, basically a set of arrows, connected the diagram spaces as a rebus; the other, a more pictorial set of doors, shown as double, open, closed, glassed, and so on, symbolized the relationships more directly in terms of edges. Further work on this study could entail developing appropriate notations for the relationships described which could be used in programming.

Another set of issues concerning these illustrations involves their match with the relationships descriptions. In order to limit this study, examples have been chosen from a narrow range of options; only those which could be considered appropriate relationships between public and private realms have been described. Appendix D briefly describes examples of mis-match and the consequences for the public environment.

18. The studio was supervised by Professor Donlyn Lyndon. Further work done by other students on that site in the subsequent spring studio which also examined arts facilities at M.I.T., and additional programming done through the Arts Environments Study, have caused me to feel that this project is now outdated as a solution.

APPENDICES

APPENDIX A.

Excerpts from "Axioms for the Planning of Arts Facilities."

APPENDIX B.

Breakdown of spaces and their square footages as provided in the design for arts facilities at M.I.T.

APPENDIX C.

Part 1: A demonstration of design parameters concerning an overlook relationship between public and private realms.

Part 2: An alternative means for illustrating the Relationships Sets.

APPENDIX D.

Examples of mis-match between private activity spaces and the public realm; consequences for the public environment.

APPENDIX A

Excerpts from the "Axioms for the Planning of Arts Facilities" and accompanying report.

This appendix contains excerpts from the Axioms report. The first page lists the five axioms set out by the arts faculty committee in March of 1973; this is the title page to the report. The following pages are excerpts from the first four pages of the report. (They only leave out a specific list of facilities needs.) The remainder of the report explains deficiencies in present facilities and identifies locational options for new facilities developments and proposes first steps. Its appendix lists facilities needs for each program in fairly general terms.

AXIOMS FOR THE PLANNING OF ARTS FACILITIES

1. Development of a facilities program should be governed by a concern for making the arts activities more integral in the structure and life of the Institute. M.I.T. must take leadership in establishing new relationships among the arts and other disciplines and use the special powers of this community to bring fresh life to aesthetic and scientific understanding.

   These purposes would not be served by any building program that quarantined the arts. The practice of the arts is integral with the larger context of mental and technical processes that contribute to it. Conventional arts centers frequently place prime value on the showcase appearance of the arts and tend to segregate them from the processes of which they are a part. M.I.T. should seek a disposition of space and activities that provides an appropriate place for each of the arts programs and which merges them with the more general physical fabric of the Institute.

2. Planning for programs and buildings should recognize that arts activities at M.I.T. will have changing contents and changing inter-relationships with each other and with other parts of M.I.T. Program organization, administrative structure and facilities should not be locked into a single image of "the arts at M.I.T." Planning should establish a frame that will allow growth and change in programs and individuals.

3. Two types of need for facilities should be identified: those that would enable existing programs to reach their full potential, and those that are related to developing new programs. Support for new programs must be considered as integral with the development of facilities.

4. Facilities calculated to improve the conditions for arts performance before a formal audience are important, but the first priority should be the creation of workshops and interdisciplinary workshop opportunities. These should be tied with more project-oriented curricular structures for the academic programs in the arts.

5. M.I.T. should try to avoid a separation of "hobby-level" from "serious" student involvement in arts activities, and facilities should be located so that they ease transition from one to the other.

DISCUSSION OF ARTS FACILITIES FOR M.I.T.

Participants: Professors Roy Lamson, John Buttrick, Joseph Everingham, Albert Gurney, Barry Spacks, Wayne Andersen, Henry Millon, Jonathan Green, Richard Leacock, Donlyn Lyndon, Dean William L. Porter, and Karen Wheeler

Reporting: Professor Donlyn Lyndon, Karen Wheeler

Our discussion of facilities for the arts has been conducted with the understanding that we are at a point of significant changes in the role of the arts at M.I.T. and in society. We recognize the roots of this change in the strivings of our own work, and in the shifting styles of teaching and learning that we share with our students. We recognize kindred transformation in the interests and experience of our colleagues in other disciplines and therefore seek a context for the arts at M.I.T. that will be mutually reinforcing.

Chief among our concerns is the need for program development. M.I.T. needs increased faculty and staff to enable arts activities to assume an appropriate role in the life of the Institute.

Our discussions in this group, however, have been focused on delineating the need for facilities, both for the immediate future, and for the longer term. The axioms on the previous page summarize the bases on which we should proceed, and on which we all agree. Following are more detailed observations and recommendations. A working paper outline of facilities needs coupled with faculty comment on specific program requirements is appended.

ACCESSIBILITY

All members of the M.I.T. community should be invited to participate in the processes of the arts, as well as to study and to enjoy its products. In principle we are attracted to the conceptual image of glass walled corridors penetrating the arts activity spaces, so that the workings of the arts would be evident in the every-day experience of M.I.T. Literal interpretation of that image would, however, deprive faculty and students of necessary elements of privacy. The arts activities, like any other, require a variety of environmental conditions. There must be places for private work, for team projects and for public gathering and display; for unharried contemplation and for active participation in the making of objects and events; for staged performances and for casual encounter and

improvisation. Facilities must provide for this range, but the emphasis should be on ease of access, a ubiquitous presence of stimulating activities, events and displays, and the establishment of good working conditions.

The "gates" between activities, between doing and showing, between preparation and performance; between the casual and the controlled encounter should be manipulable, subject to change and revision by those who are involved in the programs. It is important to note that unwanted barriers can be established by building separations and imposing formal order as well as by walls and doors. Kresge Auditorium provides an illustration. Its monumentality establishes a permanent and intransigent gate that makes everything that happens there a special ceremonial event, whether or not that is appropriate (as it sometimes is), while the ongoing theatre and music activities housed there are irrevocably separated, shielded and hidden away.

A STREET OF ARTS ACTIVITIES

As with many academic and corporate institutions, much of the physical setting at M.I.T. is based on shielding from view the messy workings of its excellence and presenting to the public a formal setting that is controlled more by abstract goals and ideals than by the life styles and creative activity of those who use it.

We argue for physical settings that would more frankly acknowledge and make evident the workings of the arts, and in so doing realize the potential for inter-relationship and mutual understanding that is implicit in the linked structure of the main buildings. This potential is scarcely realized in the almost uniform development of these buildings into rows of isolated space bounded by blank corridors with little room for improvisation - even of a conversation.

The interconnecting spaces should be more like an active pedestrian street with many interesting uses and a rich variety of opportunities for engagement. A covered street linking various programs together could be lined with several levels of arcades, with places to meet or to watch, to share in the making of an event or to display one's wares and enjoy the comments of others. The covered street could be designed as a place for music, with balconies and overlooks and room to dance. Special displays and demonstrations could find their place there and rooms for more conventional performances and controlled public programs could be located within it or closely adjoining. The edges could be laced with galleries and darkened places for projection. Acoustically isolated music practice rooms and music listening booths would be easily accessible elements of the place. Film, video and recording equipment could be used to extend its

reach. For instance, video cassette displays could replay recent events, or show rehearsals under way.

These places for coming together in a covered street would interweave with and be surrounded by the improved and expanded working space that is essential to further development of the arts at M.I.T. Adjoining and above the corridor area, spaces for the various programs in the arts and other activities could be developed incrementally with varying size and character and with an independent schedule of development, like buildings along a covered street.

NEED FOR WORKING SPACE

The primary need among the arts at M.I.T. is for additional, improved working spaces. Each of the programs is cramped, even at the present rate of activity, and several are severely hampered by unsatisfactory working conditions. Within the context of existing programs there are space needs that are crucial to development of the types of teaching, research and creative activity to which M.I.T. should aspire:

There is strong feeling within the group that the arts at M.I.T. will develop their real potential through working alongside other disciplines, developing ideas and educating students, as others at M.I.T. have, through creative activity within the "laboratory"; engaging students directly in an explorative working process at both the undergraduate and graduate levels. Central to this development will be the nurturing of new research areas. Research in light, form, color, sound, and communication, already under way in the Institute, could be coordinated with experimentation and research in various branches of the arts. Research in technology and the arts (such as the current archaeology and technology research under Professor Steinberg and Professor Lechtman) also needs understanding and development. There must be space for such activities interspersed with the other programs.

The working spaces established for these purposes need not be plush; they should be both flexible for potentially changing use and linked directly with other working and living places.

APPENDIX B

Breakdown of space types and their square footages, as shown in the design portion of this study.

The following itemizing of spaces provided in the design portion of this study, and their square footages, is based on the revised design except at the ground level (which is not covered by the revisions) where it reverts to the original scheme. These are broken down according to program, with shared spaces noted alongside the program spaces with which they are most closely associated. (Thus, for instance, the gang darkroom provided on the ground level of Building 12 is listed among spaces for the Visible Language Workshop, though it was meant to be shared with Photography and perhaps Visual Design.) The categorization of spaces is rough since many contain more than one function. When the square footage occupied by a function is dependent on the arrangement of its furnishings, approximations have been made. Additional, general calculations have been made at the end.

PHOTOGRAPHY

Location: main floor of Building 12, west side.

1. Workshop/production spaces

Gang darkroom (16-person)	1142
Large wet-light finishing area	675
Dry finishing area	565
3 loading rooms	100
Gang developing room	186
4 small darkrooms (2-person)	484
Small finishing area	234
Shared expandable project space	1625

2. Study spaces

Main photography gallery (shared)	965
One-person show alcoves, private corridor	650
Small public corridor gallery	150

3. Meeting spaces

Main studio	1975
Small studio	625
Gallery seminar room (shared)	460
5 teaching offices	1220

PHOTOGRAPHY, continued

4. "Support" spaces

Secretary	250
Headquarters/ faculty office and storage	375
Cage/ faculty office and storage	224
Student lockers	150
Gallery storage	235

5. Communal spaces (excluding circulation)

Entrance vestibule/ information station	350
Lounge/ waiting	160
Program "hearth"/ kitchenette and storage	500

Total square footage for photography program spaces: 13300

VISIBLE LANGUAGE WORKSHOP

Location: ground floor of Building 12, north half, and northeast corner of main floor.

1. Workshop/ production spaces

Main production lab (plus exhibit/meeting)	1560
Gang darkroom (12-person)	1092

VISIBLE LANGUAGE WORKSHOP, continued

Camera room	400
2 small darkrooms (2-person)	416
2 developing rooms	192
Wet-light finishing area	384
Dry finishing area/ cutting and storage	625
Press/ storage	625
Color lab	625
Visual communications lab	940

2. Study spaces

Carrels (and lockers)	375
Typing carrels	220

3. Meeting spaces

Project space (and office)	625
Writers' "living room"	425
5 teaching offices	1320
Lounge/ "hearth"	256

4. "Support" space

Storage	520

Total square footage for Visible Language Workshop: 10588

FILM

Location: Building 8, main level, north side of corridor; infill section between Building 8 and Theater for the Environmental Arts; ground (basement) level of Building 8, north side.

1.	Production/workshops (excluding T.E.A.)	
	Studio	1000
	Editing rooms (4 - 8)	830
2.	Study spaces	
	Main screening room	2430
	Small screening room/ seminar	360
	Video carrels	315
	TV/ lounge and waiting	200
3.	Meeting spaces	
	Teaching office	384
	Waiting/ lounge for screening room	300
4.	"Support" spaces	
	Secretarial station/ librarian	320
	Projection booth/ storage	125
	Storage and technician's office	260
	Film storage	250

total square footage for film program spaces: 6774

ENVIRONMENTAL ART AND VISUAL DESIGN

Location: Building 12, main floor, east side; infill area between Buildings 4 and 12; south half of Building 12 at ground level (shops).

1. Workshop-production spaces

Visual Design studio/ meeting	1450
Visual Design studio/ meeting	1450
Environmental Art studio/ meeting (excluding mezzanines)	2000
Color room/ camera room	300
Shop -- wood and metal, and storage	9600
Shop -- gas and welding	1900

2. Study spaces

Corridor gallery	600

3. Meeting spaces

Teaching offices (3)	600

total square footage for Environmental Art/Visual Design including shop space but excluding the Theater: 17900

THEATER FOR THE ENVIRONMENTAL ARTS

Location: infill areas between Buildings 12 and 16, and south to Building 8.

1. Workshop-production spaces

Main workshop space	12000

2. "Support" spaces

Seating lounge (storage in later scheme)	4200
Storage (basement Building 8)	1200
Sound room	300

total square footage for the Theater for the Environmental Arts, excluding shops, outdoor spaces, and shower room: 17700

GENERAL

Building 12.	Existing gross square footage, excluding penthouses, but including both floors:	50000
	Square footage occupied by new uses:	40000
	Toilets and large mechanical rooms:	2500
	Stairs, other circulation space, ducts:	7500
Total infill:	Theater for the Environmental Arts	12000
	Remaining ground level, upper level	5000

Buildings 4 & 8. Square footage occupied, basement: 2100

Square footage occupied, main level: 6770

Public facilities provided, main level:

- 2 classrooms
- coffeehouse
- newsstand
- lounge-exhibition area
- TV-lounge-carrel area

APPENDIX C

1. Demonstration of design parameters concerning an overlook relationship between public and private realms.

2. An alternative means for illustrating the Relationships Sets.

The first part of this appendix introduces a graphic means for identifying some of the physical design variables to be considered when defining a relationship between a single person working and another walking by. The relationship is deliberately kept simple because the variables are so numerous that description of a more complex situation would become cumbersome. The physical relationships would be described according to two general planning types, as set out in Section 1 of this study: disposition in space, and treatment of edges.

Several examples of these could be chosen for role-playing episodes where the potential for publicness or privacy of the activity would be matched against the frame of reference of the passerby (general public, limited public, or insider). Correlations could then be drawn between the activity's needs

and the physical setting's ability to reveal or to protect it; some judgment could then be made concerning the appropriateness of the match between roles and settings.

The second part of the appendix illustrates such a role-playing process. This was originally intended as a three-step means for illustrating the Relationships Sets, but proved too cumbersome and not very helpful. In these illustrations, a physical framework was chosen (invented rather than found) to typify the relationship. This setting was then peopled with activities in various positions and of various types, and role-playing episodes were acted out cartoon-style. Such invention, I found, was not only difficult and tiresome, but also not particularly illustrative of the quintessence of each realtionship; it therefore obscured the usefulness of the relationships sets in design processes.

A better illustration of the relationships sets would feature finding examples in the built and inhabited environment that typified the relationship (even better than coming as close as possible within a small range of choices, as I have sone in the illustrations given). That would require years of search, no doubt, but it would greatly aid the understanding, not only of the relationships themselves, but also of their dependence on greater social and physical contexts.

PART 1

1. Disposition in space.

The most basic condition illustrated in the base drawing assumes that there are no edges other than those defined by the ground, and that there is a uniform cover over both path and activities spaces.

How the dimensions and types were chosen. The two most important variables I considered were horizontal distance and vertical displacement between activity and passer-by. The remove allowed by simple distancing of one activity from another is obvious; the farther away, in general, the more privacy allowed for the activity. The three distances illustrated here were chosen as representing three of the ranges characterized by Edward T. Hall (The Hidden Dimension, [N.Y.:1969], 114 ff.): personal distance, a very close range; social distance, a middle distance where the activity is still completely visible; and public distance, a longer range whose upper limit represents approximately the distance from which a person's face is still recognizable by a normally sighted person. Their dimensions are given here as: adjacent, 1 - 3 feet; proximate, 4 - 10 feet; and removed, 11 - 50 feet.

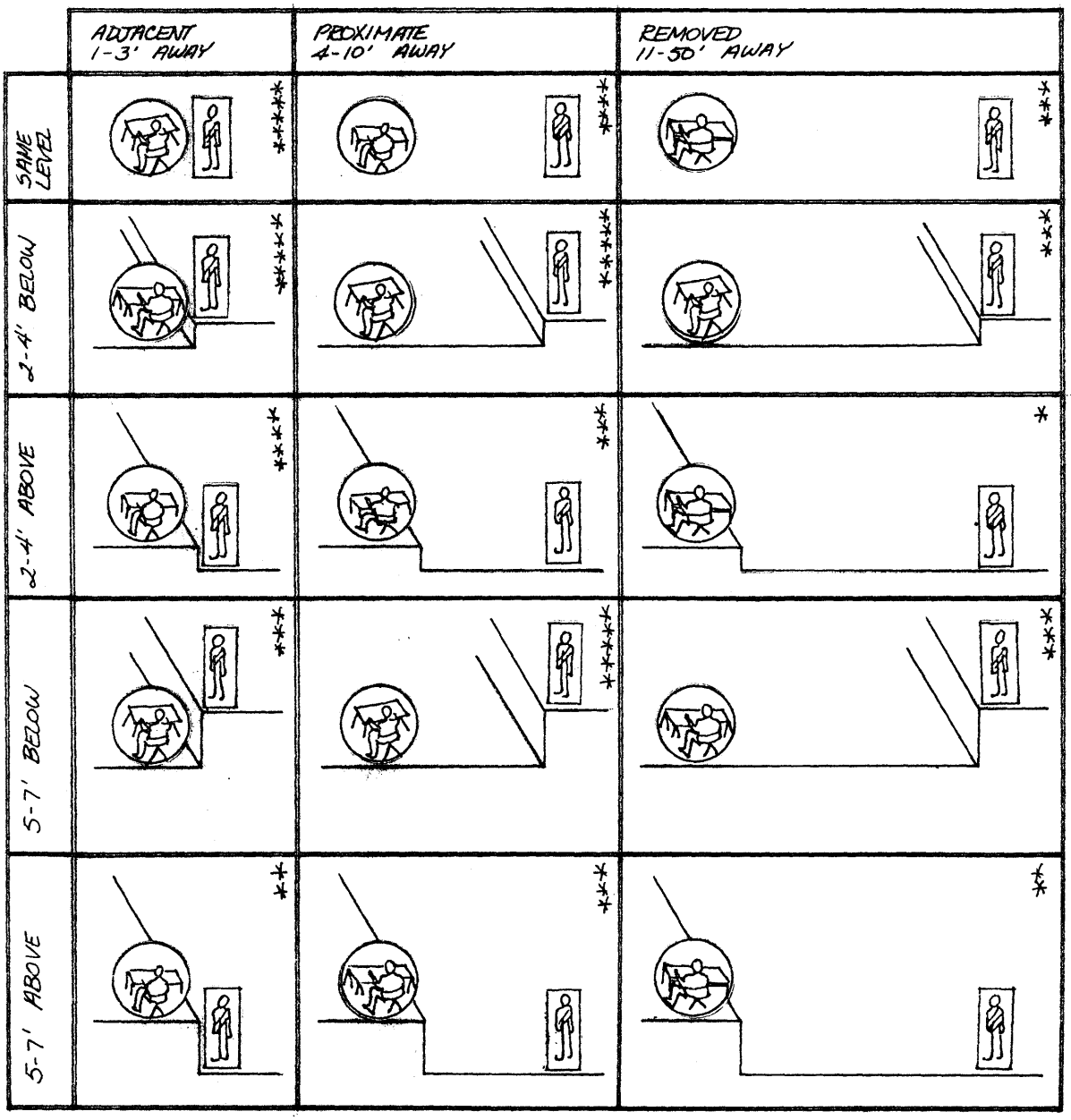
The relationships made by relative changes in level are more complex. They have the capacity to alter one's range of vision and to make one feel more or less exposed when looked at. This can be demonstrated by real situations. The new art building at Smith College has studios which are overlooked by passageways above. Before the building was built, when the plans were made public for the first time, the biggest complaint that students had, anticipated a privacy control problem: they said, "How can we work in our studios with all those people looking down over our shoulders all the time!" The problem was perhaps not only the self-consciousness that visibility may induce, but the threatening character of the angle of visibility.

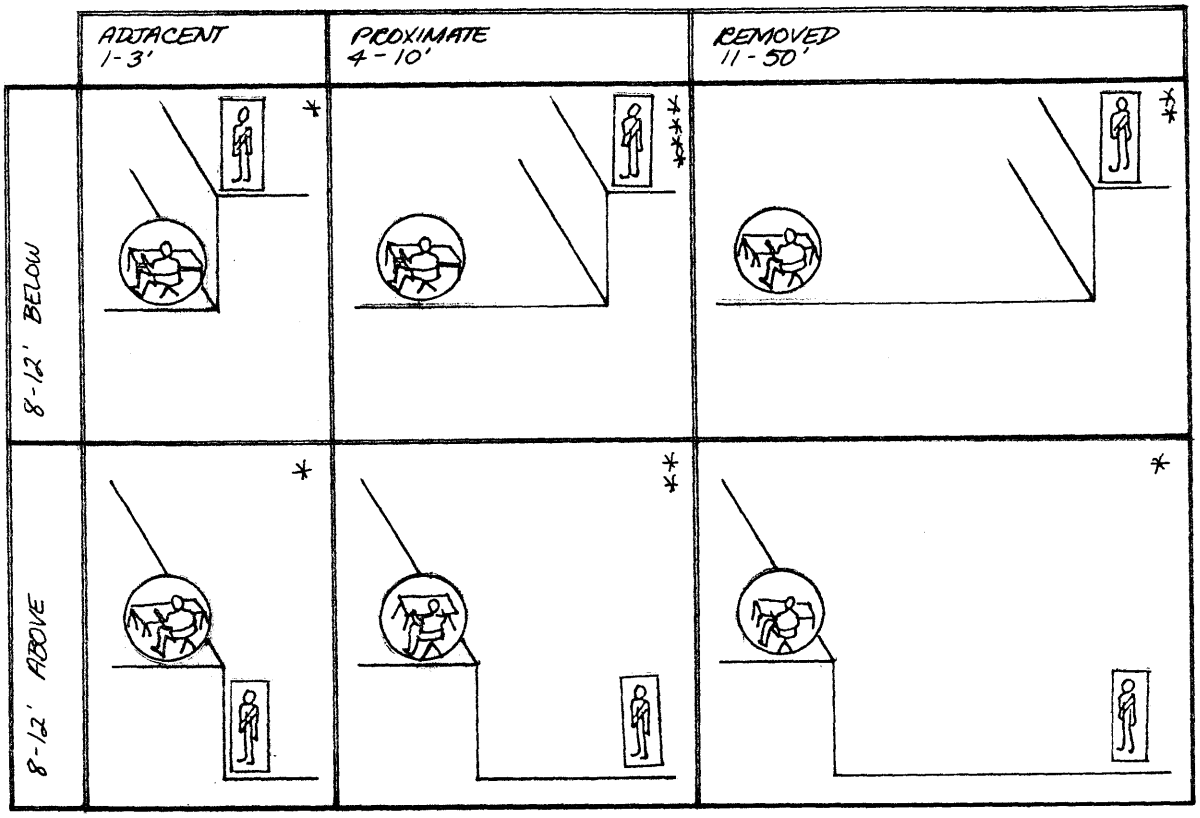
The distance above seems to make a difference in how exposed one feels, especially when combined with certain distances away that optimize the view from the passerby's position. The three distances chosen here include a few steps up, where the ground is still of usable dimension; a human height range including shoulder and eye-level, head height, and arm's reach; and the range of level slightly out of reach but still easily within one's normal angle of vision (60° cone from eye-level) from the middle distance (4 - 10 feet) away. These are: 2 - 4 feet; 5 - 7 feet; and 8 - 12 feet. Besides affecting one's feeling of exposure, these may also affect one's ability to detect motion and thus be distracted.

In the following drawings, the passerby and the activity are placed in various positions above and below each other and relatively near or far away. The placement of each relative to the level change was determined by taking the worst case (or best, depending on whose side you're on!) The activity is placed where it is most vulnerable, the passerby where the best view or greatest access is allowed. In both cases, it is assumed that this means closest to the edge. Distance from the edge is another variable which could probably be taken through more changes than the acting out of distances does here.

How the types are ranked in general terms of exposure and access allowed. In order to demonstrate how complexly the variables influence the potential for the passerby to interfere with the activities, each of the relationships has been ranked by giving them stars for interference: one or no star means that there is little or no interference; five stars mean that there is maximum potential for interference. Of course, these are only rough guesses; without a greater physical and social context, it would be be impossible to judge more accurately. They are also relative assessments, exaggerated to make the point.

BASE MATRIX: DISPOSITION IN SPACE



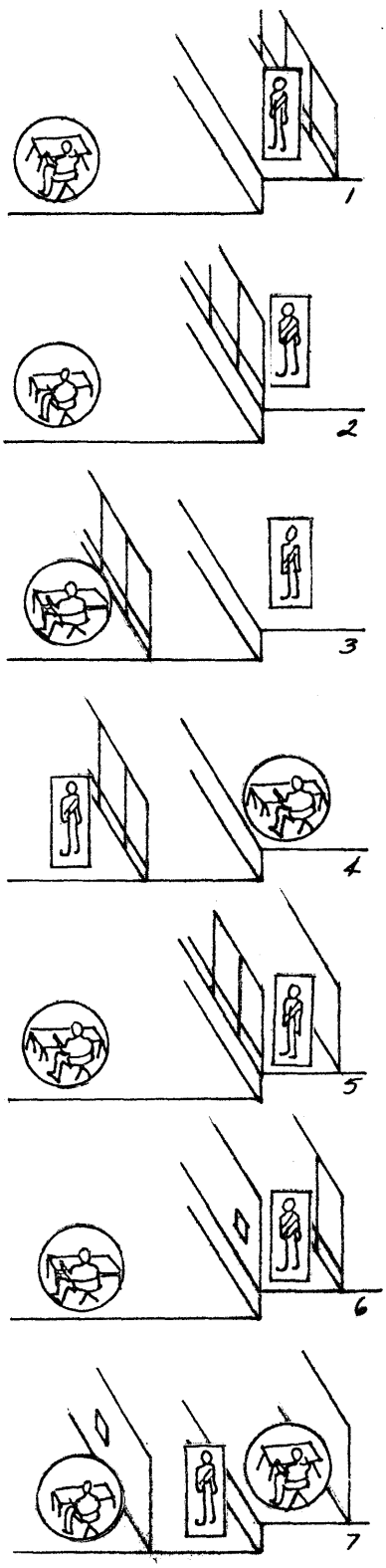


Note: the location of the activity within the matrix has been kept constant so that it would be easier to gauge how manipulation of the surrounding environment (and thus the position of the passerby) the view and range of vision of the activity.

2. Treatment of edges.

The provision of an enclosure modulates sensory (and physical) access to the activities from the public path. These are most effective in influencing the relationship when the distances between the activity and the path are at the smaller end of the range illustrated.

Three issues concerning the treatment of the enclosure are examined here: porosity or barrierness of the edge type; placement of the edge types relative to each other (layering); and placement of the activity within the zones set up by the edges. Rather than running the variations of these through the base matrix, which would take hundreds of pages, I have chosen a few as illustrations of the issues involved.



1. Path and activity united in space by placement of edge relative to level change.

2. Edge aligned with level change creates a barrier; type of edge becomes more important.

3. Intermediate zone created by level change and placement of edge offers another degree of remove.

4. Degree of remove is reinforced by reversing of positions. Edges that separate.

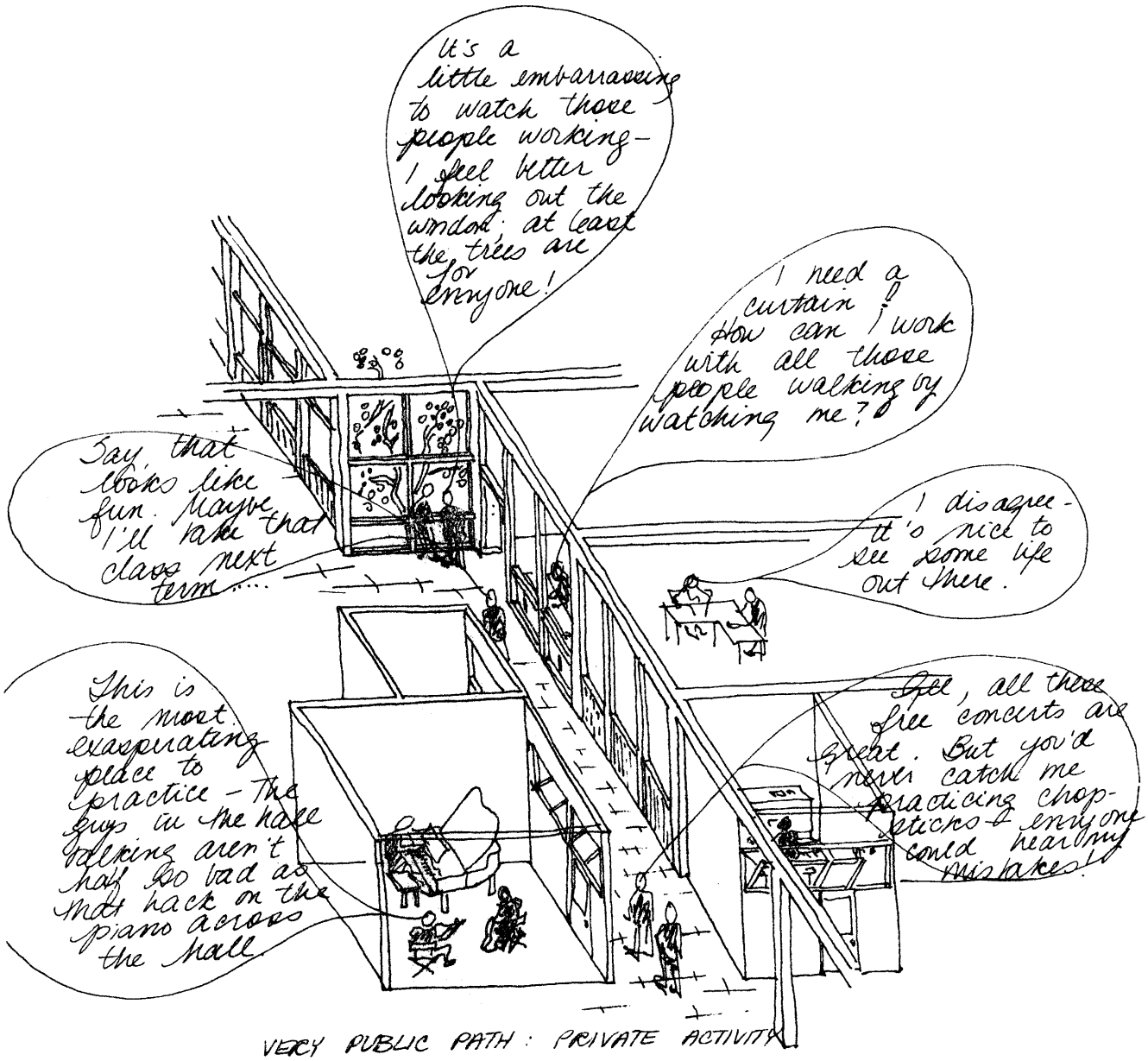
5. 6. Direction of passer's attention is determined by layering and placement of edges. Protection for the activity is granted by the porosity of the edge type in both cases.

7. A more complicated setting where edge types, placement of activities and paths relative to each other and to the layering of edges, determine the communication between the zones.

PART 2

The following drawing was made to illustrate a hypothetical environment which would allow full sensory awareness of activity spaces from the public path. Glass walls allow full views of a studio space; open transoms allow those in the path to hear the sounds of music practice rooms. The activities are assumed here to be very private (requiring fairly stringent controls), whereas the path is assumed to be accessible to the general public. Role-playing illustrated cartoon-style attempts to identify some of the issues and conflicts. For instance, those in the studio who are closest to the windows feel more jeopardized than those placed farther back in the room. Those in the path do not mind the mixture of sounds from the two practice rooms, but the sound transmission interferes with the more serious musical activity pictured on the left side. And so on. Presumably, if the path were accessible only to insiders, or if the activities themselves were of a more public nature, the reactions would be different to the physical environment.

This method was found to be cumbersome and difficult for illustrating issues or ideal circumstances, but might be useful as a means for acting out conflicts in a designed setting.



VERY PUBLIC PATH : PRIVATE ACTIVITY

APPENDIX D

Examples of mis-match between private activity spaces and the public realm; consequences for the public environment.

This appendix first discusses examples of informal relationships between M.I.T.'s main corridor and private office spaces, which may be considered mis-matches. These were originally intended to illustrate the Relationships Set, but proved to be so troublesome as examples that they are given here instead. Then a brief description of related types of situations found at M.I.T. will be presented both to fill out the context and to indicate consequences for private transaction relative to enlivenment of the public path.

Working -- production

Informal relationship

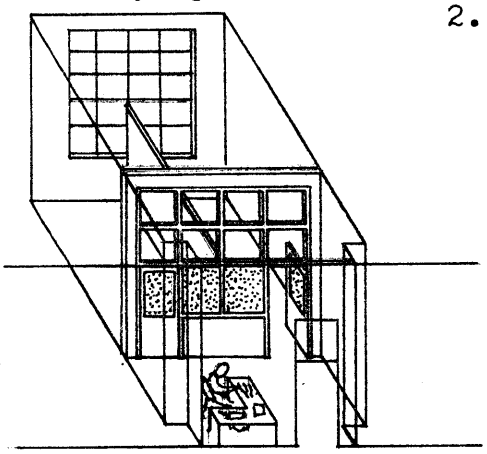
Active, static, other

General and limited publics; most public path

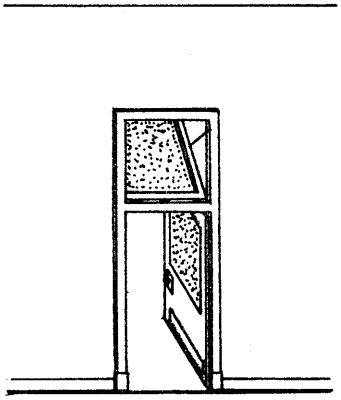
Existing: an office and secretarial station

This example represents a troublesome but interesting and revealing case. For the activity spaces, the physical form and the social context are at odds with each other, and depending on the situation, may place the relationship into several categories.

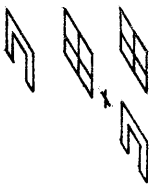
1. Activity space



2. Single edge type



3. Multiple layer edge type



The generic type of activity is a private work office for two faculty members. A second type of working space, a secretarial station, precedes it. It is located on the main (i.e. most public) corridor. Physically, the type is an inhabited multiple layer edge with a relatively impenetrable

first layer, a more porous second layer, and a windowed final boundary. The first layer encountered from the path, as illustrated, is an opaque wall with a frosted glass door and transom. The door has the room number and the professor's name painted on it. The informal relationship between the public path and this activity space should then be considered "static." When the door is shut, one knows only (or assumes) that it is an office.

When the secretary is there, however, the door is always open. Then, the relationship between the path and her activity is, for the general public, an active one, since one is directly exposed to sight and sound of the activity. The secretary said that people (general public) often stop in to ask directions; students and faculty in her Department (insiders) often stop by for a visit. The main constraint on access is social: unless one makes an excuse to go in (to ask directions, to make and appointment, etc.), one would generally not enter the space.

Because there are multiple layers to this example, there are several levels of relationships possible: between those in the public path and the secretarial station (just discussed); between the secretary and the private offices; and between those in the path and the private offices.

The relationship between the secretary's space and the private offices physically allows only awareness of the space beyond; the most important relationship there is that determined by social roles.

Informal relationship between the public realm and the private offices is allowed only by the opening of the door. Because of the window wall which is obscured at eye-level, only awareness of the existence of space beyond is allowed; the two doors indicate the pattern of occupation. The informal relationship is still considered static. The presence of the secretary as "gatekeeper" occupying an intermediate zone increases the physical degree of remove from the path but in social terms may facilitate communication between those in the public path and those in the private offices. If, for instance, the secretary were not there, both general and limited publics would feel more social constraint on entering the private activity realm; the secretary thus sets the social context.

The question that remains concerns the appropriateness of these relationships. Putting a fundamentally private activity as this is along the most public path does, in itself, create a conflict. Even when social means for softening that conflict (opening the door for example) are used, the inherent awkwardness of the juxtaposition remains.

The immediate vicinity of this office, which is across the hall from the design site, contains three other types of relationships between private offices and the public path. Two have the same door type, including frosted glass, as the example just discussed; the third substitutes clear glass in its doors. One of these spaces is a shared office without secretarial space; the edge between the path and the activity is single-layered, so the door is almost always closed to insure privacy of those working inside. (No relationship.)

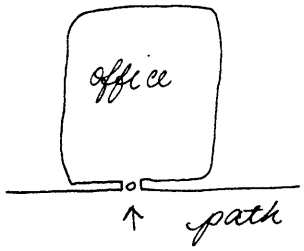
A second example is also a single edge, but opening onto a shared secretarial space the full depth of the bay, with private offices arrayed to either side. The private offices are thus removed from the path both by physical and by social context. The informal relationship to the space is static, since there are signs on the door.

The third example allows an active relationship with the public path because of the clear glass in the doors; the arrangement is similar to the secretary-office relationship previously illustrated, but some of the awkwardness is mitigated by the edge type rather than by the social context created by opening the door.

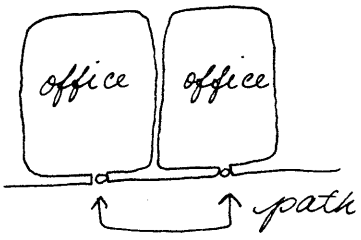
The following chart of types of arrangements between the public path and private offices indicates a range of

degrees of remove which influence relationships between the activity spaces and the public path and those between the private offices themselves. Though the private spaces should be protected from scrutiny, sometimes their vestibule, their shared secretarial spaces, or the meeting space between them may offer some relationship with those in the public path.

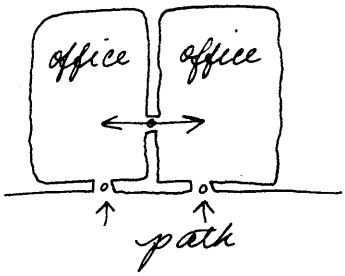
a. Single office. Isolated. Interaction happens entirely within private realm. Offers least opportunity to inform/ enliven the public realm.



b. Individual offices side by side. Exchange between them may be discouraged by having to travel onto the public path; when the path is a side corridor (an upper floor, for instance), the path may be claimed, though the physical form does not encourage that.

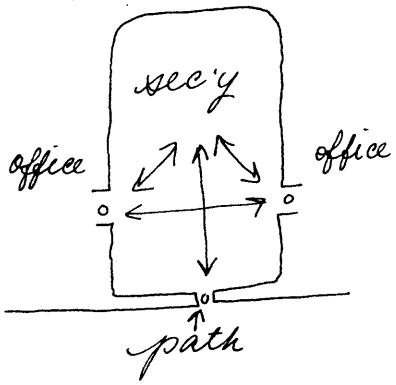


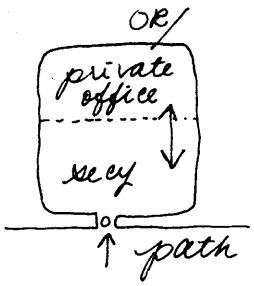
c. Interchange takes place wholely within the private realm, though there are



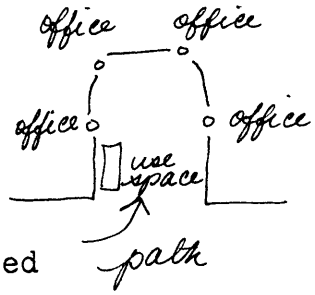
internal means to encourage such relationships.

d. Multiple layer edges allow the introduction of secretarial spaces, either directly aligned and placed between the path and the private office, or mis-aligned (often a change in direction) and thus perhaps allowing a more publicly experienced receptionist or waiting area. The social context is understood through clues.





e. The path bulge may fulfill a similar vestibule role for private offices, though publicly more accessible, and if used by those from the offices, it may provide an active relationship between the path and a meeting place. Both this and the previous type(s) allow the private offices to remain protected and offer at least some limited means for informing the public realm, depending, of course, on the edge treatments.



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